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Desc	a	Ills	a	Fest	0	DtSt	s
						Dates	1990,

040 HEC ‡c HEC

041 eng

090 RA413.7.A4 ‡b W47 1990

090

049 HECA

100 1 West, Howard.

245 10 Changes in Medicare part B physician charges, 1985/1987 : ‡b final report / ‡c Howard West, Peter McMenamin, Leo Marcus.

260 McLean, Va. : ‡b The Circle, ‡c [1990]

300 Supported by HHS contract no. 100-87-0016.

500 "March, 1990."

504 Includes bibliographical references.

650 0 Medicare ‡x Economic aspects.

650 0 Medical fees ‡z United States.

650 0 Medical care, Cost of ‡z United States.

650 0 Physician practice patterns ‡x Economic aspects ‡z United States.

650 0 United States. ‡b Health Care Financing Administration.

700 1 McMenamin, Peter, ‡c Ph. D.

700 1 Marcus, Leo.

710 1 United States. ‡b Dept. of Health and Human Services.

710 2 Circle, Inc.

006 fields for Books Book

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GPub o	Conf 0	Fest 0	Indx 0	LitF 0	Biog	
Action Status	Delete Holdings	Export C	Label	Produce	Update Holdings C	Validate

**CHANGES IN MEDICARE PART B
PHYSICIAN CHARGES 1985/1987: FINAL REPORT**

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HHS CONTRACT NO. 100-87-0016

MARCH, 1990

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FROM: George D. Greenberg *GD*

SUBJECT: Final Report from the Circle, Inc.

The final report from The Circle, Inc. analyzing 100% Part B data files from seven carriers and ten states is enclosed. I want to thank you for your comments and assistance during the course of this project.

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EXECUTIVE SUMMARY

I. BACKGROUND AND SCOPE OF WORK

The principal thrust of this project was to begin to analyze the growth in Medicare Part B payments for physician services using HCPCS data from a selection of carriers that had converted to HCPCS as of 1983 or early 1984. Those carriers made available 100 percent Part B patient history data for services provided between January 1, 1983 or January 1, 1984 and December 31, 1987.

A series of detailed research questions were posed for this project. The questions were designed to address specific factors, centering on physician behavior, that may have affected the growth in Part B payments for physician services. Those questions involved the issues of the use of more complex codes for office visits, i.e., visit upcoding; potential physician generated additional visits in order to increase volume; increases in physicians' ordering of ancillary services; the possible shifting of more complex surgical procedures to outpatient settings and physicians' offices over time. There was also a very basic question of how the growth in Part B expenditures varied by type and place of service with respect to increased enrollees, increased claimants,¹ changes in services per claimant, and changes in average charges per service.

¹ A claimant can be understood somewhat loosely to be a beneficiary who has received a covered physician service with a positive allowed charge determination as recorded by a Medicare Part B carrier. The data sets used in these analyses have been edited to exclude both records with zero allowed charges and records for other than physician services. Hence all beneficiaries recorded in these files are claimants. See pages 57, 61, and 66 for additional discussion of this topic.

These issues took on heightened importance as, during fiscal year 1987, outlays for the reimbursement of services provided under Part B increased more rapidly than anticipated, necessitating a substantial increase in the premium paid by Medicare beneficiaries enrolled in Part B. The data available for this project have allowed an examination, and to some extent decomposition, of the sources of the Part B increases experienced during the period 1983-1987. As such, these data may give clues to nascent trends affecting more recent outlay changes.

The current report concentrates on the findings from the analyses of the data from 1985/87. Data were available from eight jurisdictions to examine changes that occurred between 1985 and 1987. These jurisdictions are referred to as the "Eight State" group. Comparisons between the 1983/85 and 1985/87 rates of growth are based on a subset of five jurisdictions analyzed in the initial report. These are referred to as the "Five State" group.

II. FINDINGS

MAJOR SOURCES OF CHANGES IN ALLOWED CHARGES

Part B expenditures nationally increased by 34 percent from 1985 to 1987 compared to 24 percent between 1983 and 1985. The aggregate increases in outlays came to 33 percent in the eight sample States from 1985 to 1987--37.2 percent in the original five State sample [compared to an 18.5 percent increase in those five states from 1983 to 1985]. Total allowed charges for physician services in the eight states totaled \$2.4 billion in 1985 and \$3.2 billion in 1987, an increase of \$794 million. For the five state group, total

allowed charges increased by \$326 million from \$878 million to \$1.2 billion. The comparable change in those five states from 1983 to 1985 was an increase of \$137 million based on a total of \$740 million in 1983. Thus the 1985/87 increases were substantially greater from 1985 to 1987 than were observed from 1983 to 1985.

The major sources of 85/87 growth occurred in physician offices, inpatient hospitals, and hospital outpatient departments. In contrast, the 83/85 growth was concentrated in the hospital outpatient departments, primarily with respect to surgery.

There were substantial increases in claimants for many types of service. In fact, based on the data from the five state group, the growth in claimants accelerated in 85/87 relative to the previous estimates from 83/85. In spite of this acceleration in growth of claimants, given the greater proportional increases in allowed charges, claimant growth appeared to represent a smaller share of the total growth from 1985 to 1987.

DISAGGREGATED ANALYSES OF CHARGE INCREASES FROM 1985 TO 1987

By types and places of service, medical care provided in physicians' offices was the number one source of growth in all of the eight states from 1985 to 1987. In aggregate this cell represented 17 percent of the total growth in allowed charges over that time period. In contrast, OPD major operative surgery was the largest single cell in the five state group from 1983 to 1985, representing 34.7 percent of total growth, while office medical care over that time period represented 20.9 percent of the total. By type of service medical care and major operative surgery were numbers one and two

in terms of total growth from 1985 to 1987. Physicians' offices, followed by inpatient hospitals and hospital outpatient departments were 1, 2, and 3 in growth by place of service.

Although the increases in OPD major operative surgery were a smaller share of total growth in 85/87 compared to 83/85, in fact, the 85/87 absolute increases were larger than those observed in 83/85. The relative rate of growth of this cell appeared to decelerate only because the OPD major surgery base was increasing so rapidly.

There were differences among the eight state group in terms of the major sources of increase. In the Pennsylvania Blue Shield states the 85/87 increase in allowed charge per service was the largest of the three aggregate growth factors, while in the original five state group increases in services per claimant represented the largest factor.

DIFFERENT DATES/DIFFERENT STATES: DIFFERENT STORIES

The 85/87 pattern of changes in allowed charges was different than that of 83/85. OPD surgery growth and claimant growth were substantial in both periods, but the PPS related inpatient changes in hospital visits and laboratory tests were finished by 1985 and physician office service growth and inpatient growth became more important. While there were absolute utilization reductions in 1983/85, service utilization even on a per claimant basis increased in 1985/87.

While there are many remarkable consistencies between states with respect to many statistics, interstate differences do occur and can be substantial. For example, there are substantial differences in the distributions

of followup visit codes--see below re "overcoding." In addition, there are differences among states in the percent of enrollees recorded as claimants, differences in utilization growth, and differences in growth in average allowed charges, (with Pennsylvania Blue Shield states experiencing generally higher growth in average allowed charges than the other five states in the study.)

With respect to the recently withdrawn provisions for the coverage of catastrophic health care expenditures under Medicare, differences in the relative frequency of high expense patterns of care suggested that a uniform national catastrophic health insurance limit would have very different effects across the States. Specifically, markedly fewer beneficiaries would have become eligible for catastrophic coverage in some states because those states have relatively inexpensive typical patterns of care. On the other hand, what was also apparent in the data on individual claimants' total allowed charges was that the distributions of allowed charges are very stable across both States and years. [See Appendix.]

CHANGES IN THE DISTRIBUTION OF FOLLOWUP OFFICE VISIT CODES

Contrary to recent news reports, there appears to be considerable stability in office visit coding distributions, i.e., the data show little or no evidence of upcoding.² The net estimated 85/87 financial impact of changes in the distribution of followup office visits was a 1.6 percent increase from 1985 to 1987, with impact estimates ranging from 0.6 percent in South Carolina to 4.3 percent in Indiana. With respect to the five state group, the 85/87 upcoding estimate was lower than that of the 83/85 estimate, viz., office visit

2 Defined in terms of changes over time in the distribution of office visit codes by intensity.

upcoding appeared to decline. In fact, the initial 83/85 results from Indiana appear substantially overstated due to a crosswalk decision made in converting the pre-1983 Indiana coding system to HCPCS.

OVERCODING

While there appeared to be relatively little upcoding over time, there are significant and stable differences at any one point in time in the distributions of office visit codes--hence potential overcoding. Because of this, if one could realign the distribution of office visits in the direction of the less intensive States such as North Dakota or South Carolina, one might significantly reduce expenditures for office visits even within the existing set of allowed charges.

CHANGES IN THE DISTRIBUTION OF HOSPITAL VISIT CODES

The office visit upcoding analysis was replicated for hospital visits. As with office visits, there appeared to be considerable stability in hospital visit coding distributions. The net estimated 85/87 financial impact was an 1.8 percent increase for followup hospital visits only. The distinction between the initial and subsequent hospital visits is very important in analyzing potential hospital visit upcoding. For example, one could infer downcoding of 0.4 percent for the combined set of both initial and followup hospital visits. The report demonstrates that because of the influence of average length of stay, the hospital followup visit only estimate is a better measure of potential upcoding than the all visit measure.

FREQUENCY OF VISITS

While there was an increase in the number of office visits provided in the eight state group, this increase could almost totally be accounted for by increases in the number of claimants receiving medical care services in physician offices. Specifically, visit frequency per eligible increased; visit frequency increased much less per Part B claimant; and visit frequency was relatively stable per Part B claimant of office medical care services.

PROVISION OF ANCILLARIES

While there appeared to be little or no increase from 1983 to 1985 in the provision of ancillary services with respect to a claimant's initial office visit during the year, this was not the case from 1985 to 1987. All eight jurisdictions experienced at least one aggregate increase in services associated with a claimant's first office visit of the year, based on examining patterns of service within alternate "windows" of service of 7, 15, or 30 days with respect to that initial office visit. Medical care as a type of service and OPD as a place of service were the primary sources of increase. Curiously, pathology services decreased within initial visit windows while increasing in aggregate--possible evidence of increasing physician use of pre-visit testing.

There appeared to be a major increase in minor surgery, but this increase was primarily a function of HCFA authorized changes in venipuncture codes.

MOST COMMON PROCEDURE CODES

There is considerable correspondence between the states in terms of the most commonly billed CPT-4 codes. There have been changes from 1983 to 1987, however, coding switches drive some of the changes in most common codes, viz., new cataract codes, venipuncture. In particular, there was a spectacular increase in billing for venipunctures for collection of specimen. This increase was a function of a regulatory change in 1984 and a HCFA coding change in late 1985. The review of the most common codes does highlight the advent of "new tech" procedures as evidenced in cataract surgery and fiberoptic endoscopies.

PROJECT OFFICER'S OVERVIEW

GEORGE GREENBERG, Ph.D

This report presents the findings of a study supported by HHS (contract 100-87-0016) which analyzes trends in the growth in Medicare Part B outlays for physician services in selected states between 1985 and 1987. This study compares these trends to those analyzed in an earlier study between 1983 and 1985 (HHS contract 100-85-0053). The national rate of growth in Part B outlays was approximately 24 percent between 1983 and 1985 and 34% between 1985 and 1987. This study is one of several to look at this phenomenon. It covers five states between 1983 and 1985 which together accounted for approximately 5 percent of total Medicare Part B spending in 1983 and three additional states between 1985 and 1987 which together with the five original states accounted for approximately 12 percent of total Medicare Part B spending in 1983.

There were many changes in the Medicare program occurring during the 1983-1985 time period. No analytic technique will be able to fully disentangle these

factors to explain growth in Part B outlays during the period. Of interest and probable impact were: the introduction of hospital prospective payment, the introduction of the Peer Review Organization (PRO) program, introduction of Health Care Financing Administration (HCFA) Common Procedure coding (HCPCS), the development of a list of covered services and a reimbursement methodology for ambulatory surgery centers, and others during the 1983 to 1985 period; and the increased collection of Medicare Secondary Payer obligations from other third parties, overpriced procedure reductions, the imposition of Maximum Allowable Charges (MAACs), and other factors during the 1985 to 1987 period. Since several of the policy changes were designed to reduce Medicare growth, the high rate of outlay growth measured during this period may be understated.

Any findings which imply causality need to be interpreted with caution. This overview summarizes some of the major findings of the study and the issues surrounding the findings concerning new claimants.

BACKGROUND

The report's authors have applied a technique known as decomposition for the first time to the analysis of 100 percent Part B data in eight states (South Carolina, Washington, Indiana, North and South Dakota, Pennsylvania, Delaware, and the District of Columbia). The analytic technique has been previously used by HCFA's Office of the Actuary. The Office of the Actuary has used the technique to decompose increases in the National Cost Estimates into factors of enrollment growth, price, and volume and intensity factors. In the current

study (1985-1987) and its predecessor (1983-1985), the authors decompose growth in Part B outlays into three different growth factors: average charge per service, the number of claimants, and services per claimant. In the Actuary's decomposition, volume and intensity is a residual which remains after changes in price and enrollment growth are taken into account. The primary purpose of the authors' alternative decomposition is twofold. First, the actuary's price variable is redefined as average charge per service which measures shifts from low price to high price services as well as pure increases in price indices. This has the effect of dividing what the actuaries call "volume and intensity" into shifts from low price to high price services and increases in the raw volume of services per beneficiary. Second, the authors also isolate the separate effect of increases in the number of individuals submitting claims during a year (the number of "additional" claimants is measured by comparing the number of individuals who have submitted at least one claim in 1987 compared with 1985 or 1985 compared with 1983). As discussed below, the authors' analytical approach, by splitting out separately the number of "additional" claimants, has the effect of reducing substantially the traditional measure of services per beneficiary. (See Table 17, page 75.) The validity of the decomposition rests on methodological assumptions as discussed later in this overview.

The bulk of the report is based on an analysis of cross sectional data at three points in time, calendar years 1983, 1985, and 1987 to better understand growth in outlays over several years. Growth in various aggregated and disaggregated factors are examined between these points. The reader should be aware that individuals have not been traced from year to year; the primary

analyses include only aggregate comparisons, albeit decomposed, between the several end points.

FINDINGS

In 1985 to 1987 a quite different and more varied picture emerges compared with 1983 to 1985 with significant differences across the states examined. Although national Part B growth has averaged approximately 14 percent per year between 1983 and 1987, the analysis indicates that the causes differ between 1983-1985 and 1985-1987, and within time periods, across states, as well as by place and type of service.

Beneficiary growth was 4.3% between 1985 and 1987 but outlay growth in the eight states increased by 33 percent (approximately \$794 million). Between 1983 and 1985 beneficiary growth was 4.4 percent, but total outlays in the five states grew by approximately 18.7 percent (approximately \$138 million). That is, while the rate of beneficiary growth was almost equal in the two time periods, the rate of outlay growth in the 1985-1987 time period was nearly twice that of the 1983-1985 period and more than six times the beneficiary growth rate.

Between 1983 and 1985 approximately 40% of outlay growth was explained by the growth in allowed charges for ambulatory surgery. The growth in ambulatory surgery was so large that it could not be explained by the substitution of outpatient for inpatient surgery. The growth in ambulatory surgery, (a relatively inexpensive surgery but a relatively expensive service),

contributed to making the increase in average charge per service the largest single explanatory factor in the initial period distantly followed by the increase in new claimants. Growth in services per claimant actually declined substantially.

Between 1985 and 1987 growth was greater and spread more equally among factors than between 1983 and 1985. Whether measured against claimants or against enrollees, growth in services is substantial. Services per claimant accounts for approximately one-third of total outlay growth across all eight states. Growth in average charge per service and growth in claimants also account for approximately one third of total growth each.

Surgery in the outpatient setting which in the 1983-1985 period explained almost 40 percent of total growth explains in the 1985-1987 period only 14 percent. However, in absolute dollars, ambulatory surgery was a larger source of increase in allowed charges than in 1983 to 1985 (approximately \$100 million compared with approximately \$60 million). Inpatient surgery allowed charges, which declined between 1983 and 1985, were a significant source of increase in 1985 to 1987. Surgery as a whole explained approximately 48 percent of total growth in 1983 to 1985; this compares with 28 percent in 1985 to 1987.

Increases in office medical care explained approximately 17 percent of the increase in total outlays between 1985 and 1987 while office medical care explained only approximately twenty percent of the increases between 1983 and 1985. Between 1985 and 1987, office medical care became the largest single

source of disaggregated outlay growth (compared with the second largest source of ambulatory surgery in the outpatient setting of 14 percent).

Findings vary significantly by geographic area in 1985 to 1987. In the original five states studied, the greatest proportion of 1985 and 1987 outlay growth was attributable to service growth and almost none to average charge per service. In Pennsylvania, Delaware, and the District of Columbia, however, the greatest proportion of outlay growth was attributable to growth in average charge per service and much less to service growth. As noted above, across all eight states, growth is almost equally explained by growth in services, growth in average price per service, and growth in the number of claimants.

With regard to the specific physician behaviors examined, upcoding continued to explain only a small percentage of outlay growth: approximately 1.5% of office visit charges or \$4.6 million dollars. Analysis of hospital visit codes revealed a similar magnitude of upcoding: approximately 1.8% of hospital visit charges or \$5.6 million. However, differences across states in the distribution of office visit codes imply that substantial savings could result if the patterns of states with less intensive visits were generalized to the nation.

There was also a significant change between time periods in the analysis of intensity of ancillary services provided at the time of physician office visits. Provision of ancillary services increased in seven of the eight jurisdictions studied.

It is important to note that unbundling from surgical global fees was not examined in this study. Although multiple surgeries were found for the same patient on the same day in the data, examination of the reason(s) underlying this observation were not undertaken. Possible explanations include duplicate claims which the carrier incorrectly paid, multiple billings for procedures which should have been billed as a single service, or appropriate multiple billings for unrelated procedures. Examination of these alternative explanations would require clinical expertise beyond the scope of this specific study.

DISCUSSION

Although the data clearly indicate that claimants (as defined by the authors) grew by 9.7 percent between 1985 and 1987 compared with 8.8 percent between 1983 and 1985, questions can be raised about the authors' interpretation of this phenomenon and the percentage of outlay growth which it purports to explain. There are alternative explanatory hypotheses which comport with the currently available data. The methodological issue is important because if claimants are significantly discounted as a separate factor in the analysis, as demonstrated in Table 17 page 75, the more traditional approach of analyzing service increases on a per beneficiary basis would yield a larger estimate of growth in services per beneficiary.

In considering the import of the "additional" claimant phenomenon, it is important to know whether "additional" claimants add to outlays in the same

proportion as claimants with claims in both 1983 and 1985 or both 1985 and 1987 ("old claimants"). In technical terms, the authors' decomposition analysis assumes the decomposed variables are independent and that "additional" claimants therefore are "average" claimants. If, in fact, on average "additional" claimants use fewer or less intensive services, their effect on outlays will have been overestimated.

Surveys from the early years of the Medicare program suggest the underlying beneficiary use rate is stable at around 80 percent. If this rate has remained stable, then changes in the number of claimants may simply reflect changes in the billing system resulting from such factors as increased use of mandatory assignment. This could result in more claimants even though the number of beneficiaries using services remains unchanged.

Other explanations consistent with observed increases in claimants but stability in users include: price increases from sources other than fee updates such that fewer average claims are required to meet the deductible (for example, fewer claims being paid below the prevailing charge); and increased use of outpatient department facilities and ambulatory surgery centers which would tend to increase the number of beneficiaries with relatively low physician use who now qualify for reimbursement. These factors, if true, could tend to increase the number of claimants without significantly increasing total allowed charges or outlays because there are more claimants just crossing the deductible or just below the deductible submitting small, marginal claims. To the extent that these phenomena are occurring, "additional" claimants would be contributing little to costs; they would not explain a substantial part of outlay growth.

The current data do not allow a direct test of these alternative explanations; counts of individuals below the deductible are incomplete and comparisons from year to year cannot be made. To do so would require research beyond the scope of this study: examination of the relationship of beneficiary service utilization, claims submitted, and the number of individuals crossing the deductible year by year. This issue can be fully resolved only when the new Medicare Current Beneficiary Survey is conducted to determine whether the underlying beneficiary utilization rate (as measured by surveys) has changed.

However, the authors did examine the distribution of allowed charges per claimant over time to see whether the distribution is shifting towards the low end. If "additional" claimants were created by the artifacts of mandatory assignment, the erosion of the deductible by inflation, or unmeasured Part B outpatient utilization, then the distribution of allowed charges per claimant should shift towards the deductible. The authors conduct this analysis on pp. 64-69. They conclude that, by and large, the distributions remain unchanged over time. Moreover, if there is a trend, it is away from the deductible and not towards it.

I conclude that although some discounting of the findings with regard to "additional" claimants may be warranted, they also have some validity. Therefore, the approximately one-third weight afforded by the authors to the "additional" claimant phenomenon between 1985 and 1987 probably represents an upper bound. To the extent that the alternative explanatory hypotheses considered above are valid, this bound would be lowered and additional weight

would be given to the factors of average charge per service and services per beneficiary (the more traditional measure employed by the Actuary).

SUMMARY

In summary, the authors attribute the bulk of the Part B increase in outlays between 1985 and 1987 to almost equal increases in services per claimant, average charge per service, and increases in the number of individuals submitting claims (claimants). Absolute growth in charges for ambulatory surgery remains high but as a percentage of total growth, ambulatory surgery drops from approximately forty percent to approximately 14 percent. Office medical care, on the other hand, replaced ambulatory surgery as the single largest source of outlay growth.

Both office visit and hospital visit upcoding explained but a small percentage of the increase in total outlays across time periods, but physicians appear to have increased their ordering of ancillary procedures at the time of an office visit during the latter period contributing to increased service volume.

Claimant growth increased slightly between 1987 and 1985 compared with 1985 and 1983. However, since outlay growth almost doubled between the two periods, claimants now explain a lower proportion of total growth. Moreover, the validity of the claimant factor has not yet been fully resolved given the alternative explanations which have been raised.

INTRODUCTION

The present report is a followup to a study reported to the Assistant Secretary of HHS for Planning and Evaluation [ASPE] in 1988. The principal thrust of that project was to begin to analyze the rapid growth in Medicare Part B payments for physician services observed during the mid-1980s. The initial analyses were conducted using HCPCS data from a selection of five carriers that had converted to HCPCS as of 1983. These carriers made available 100 percent Part B patient history data for services provided between January 1, 1983, and December 31, 1985. Subsequently, additional data from those carriers were obtained with respect to the period January 1, 1986 to December 31, 1987. In addition, additional data were obtained from Pennsylvania Blue Shield, the Medicare Part B carrier for Delaware, Pennsylvania, and metropolitan Washington, D.C. These data covered the period January 1, 1984 through December 31, 1987.

A series of detailed research questions had been posed for this project. The questions were designed to address specific factors, centering on physician behavior, which may have affected the growth in Part B payments for physician services. Those questions were:

1. What portion of the growth in Part B payments results from the use of more complex codes for office visits, i.e., visit upcoding?
2. What portion of the growth in Part B payments results from the use of more complex surgical and other procedure codes by physicians to describe services performed, i.e., procedure upcoding?
3. To what extent have physicians generated additional visits in order to increase the volume of visits? Were there changes in the number of follow-up office visits provided?
4. What portion of the growth in Part B payments results from increases in physicians' ordering of ancillary services?

5. To what extent are more complex surgical procedures shifting to outpatient settings and physicians' offices over time?

These issues took on heightened importance as, during fiscal year 1987, outlays for the reimbursement of services provided under Part B increased more rapidly than anticipated, necessitating a substantial increase in the premium paid by Medicare beneficiaries enrolled in Part B. The data available for these projects have allowed an examination, and to some extent decomposition, of the sources of the Part B increases experienced during the period 1983-1987. As such, these data may give clues to nascent trends affecting more recent outlay changes. This report describes the processes employed, and reports the findings resulting from examination of a wide variety of specific analyses that derived from the five specific questions concerning possible physician behaviors defined in the scope of work.

The current report concentrates on the findings from the analyses of the data from 1985/87. Analyses from the initial report have been replicated using the data from the additional carrier and the later time period. Some analyses have been refined, based on the presentation of and reaction to the initial results, and to accommodate the inclusion of the new jurisdictions. Some new analyses have also been conducted to investigate some questions not addressed in the initial report. To aid in comparison of the current results with the prior results, the presentation of the analyses follows the sequence established in the initial report.

MAJOR FINDINGS

The following sections deal with the findings of the study. There were several distinct types of analyses performed although all relied on the same primary database of claims for physician services. What follows are the presentations of findings with respect to the most commonly billed procedure codes; changes in the distribution of followup office visit codes; overcoding; changes in the distribution of hospital visit codes; evidence with respect to the frequency of visits; evidence with respect to provision of ancillaries; and an examination of the major sources of changes in allowed charges over that time frame. These findings are briefly summarized in Table 1 (which is organized in topical order rather than the order in which the sections are presented in this report). The evidence supporting these conclusions is presented in the remainder of this report.

TABLE 1

SYNOPSIS OF MAJOR FINDINGS, CHANGES IN MEDICARE PART B PHYSICIAN SERVICES 1985-1987, EIGHT JURISDICTIONS

MAJOR SOURCES OF CHANGES IN ALLOWED CHARGES

- 1985/87 INCREASES SUBSTANTIALLY GREATER THAN 1983/85
- FOR 1985/87 MAJOR GROWTH OCCURRED IN PHYSICIAN OFFICES, INPATIENT HOSPITAL, AND HOSPITAL OUTPATIENT DEPARTMENTS [OPD] IN CONTRAST, THE 1983/85 GROWTH WAS CONCENTRATED IN OUTPATIENT DEPARTMENTS WITH RESPECT TO SURGERY.
- THERE WERE SUBSTANTIAL INCREASES IN CLAIMANTS³ FOR MANY TYPES OF SERVICE; GROWTH IN CLAIMANTS ACCELERATED IN THE FIVE STATE SAMPLE RELATIVE TO PREVIOUS GROWTH ESTIMATES. BECAUSE THE AGGREGATE INCREASE IN ALLOWED CHARGES WAS MUCH GREATER IN THE 1985/87 DATA COMPARED TO 1983/85, THE 1985/87 CLAIMANT GROWTH WAS SMALLER IN RELATION TO TOTAL GROWTH THAN THE COMPARABLE NUMBERS FROM 1983/85.

3 A claimant can be understood somewhat loosely to be a beneficiary who has received a covered physician service with a positive allowed charge determination as recorded by a Medicare Part B carrier. The data sets used in these analyses have been edited to exclude both records with zero allowed charges and records for other than physician services. Hence all beneficiaries recorded in these files are claimants. See pages 57, 61, and 66 for additional discussion of this topic.

DISAGGREGATED ANALYSES OF CHARGE INCREASES FROM 1985 TO 1987

- OFFICE MEDICAL CARE WAS THE NUMBER ONE SOURCE OF GROWTH IN ALL STATES BY PLACE AND TYPE OF SERVICE
- MEDICAL CARE AND MAJOR SURGERY WERE ONE AND TWO IN TERMS OF GROWTH BY TYPES OF SERVICE
- PHYSICIAN OFFICE WAS THE NUMBER ONE SOURCE OF GROWTH BY PLACE OF SERVICE
- MAJOR SURGERY IN OPD'S INCREASED FASTER DURING 1985/87 THAN 1983/85; RELATIVE RATE OF GROWTH SLOWED ONLY BECAUSE THE OPD SURGERY BASE WAS INCREASING
- IN THE PENNSYLVANIA BLUE SHIELD STATES INCREASES IN ALLOWED CHARGE PER SERVICE WAS THE LARGEST OF THE THREE AGGREGATE GROWTH FACTORS, WHILE IN THE ORIGINAL FIVE STATE GROUP INCREASES IN SERVICES PER CLAIMANT REPRESENTED THE LARGEST FACTOR.

DIFFERENT DATES/DIFFERENT STATES: DIFFERENT STORIES

- THE 1985/87 PATTERN OF CHANGES IN ALLOWED CHARGES WAS DIFFERENT THAN THAT OF 1983/85. OPD SURGERY GROWTH AND CLAIMANT GROWTH WERE SUBSTANTIAL IN BOTH PERIODS, BUT THE PPS RELATED INPATIENT CHANGES IN HOSPITAL VISITS AND LABORATORY TESTS WERE FINISHED BY 1985 AND PHYSICIAN OFFICE SERVICE GROWTH AND INPATIENT GROWTH BECAME MORE IMPORTANT.
- THERE WERE ABSOLUTE UTILIZATION REDUCTIONS IN 1983/85; SERVICE UTILIZATION EVEN ON A PER CLAIMANT BASIS INCREASED IN 1985/87.
- WHILE THERE ARE MANY REMARKABLE CONSISTENCIES BETWEEN STATES WITH RESPECT TO MANY STATISTICS, INTERSTATE DIFFERENCES DO OCCUR AND CAN BE SUBSTANTIAL:
 - DIFFERENCES IN THE DISTRIBUTIONS OF FOLLOWUP VISIT CODES--SEE BELOW RE "OVERCODING"
 - DIFFERENCES IN THE PERCENT OF ENROLLEES AS CLAIMANTS
 - DIFFERENCES IN UTILIZATION GROWTH
 - DIFFERENCES IN GROWTH IN AVERAGE ALLOWED CHARGES, WITH PENNSYLVANIA BLUE SHIELD STATES EXPERIENCING GENERALLY HIGHER GROWTH THAN THE OTHER FIVE STATES IN THE STUDY

CHANGES IN THE DISTRIBUTION OF FOLLOWUP OFFICE VISIT CODES

- CONSIDERABLE STABILITY IN OFFICE VISIT CODING DISTRIBUTIONS
- NET ESTIMATED 85/87 FINANCIAL IMPACT WAS 1.6 PERCENT INCREASE
- IMPACT ESTIMATES RANGED FROM 0.6 PERCENT IN SOUTH CAROLINA TO 4.3 PERCENT IN INDIANA
- COMPARISON OF FIVE STATE RESULT FROM 83/85 SHOWS DECREASE
- INITIAL 83/85 RESULTS FROM INDIANA APPEAR OVERSTATED DUE TO HCPCS CROSSWALK DECISION

OVERCODING

- WHILE THERE IS RELATIVELY LITTLE UPCODING OVER TIME, THERE ARE SIGNIFICANT AND STABLE DIFFERENCES IN THE DISTRIBUTIONS OF OFFICE VISIT CODES--HENCE POTENTIAL OVERCODING
- ACHIEVING A REDISTRIBUTION OF OFFICE VISIT CODES WITHIN EXISTING PRICES COULD SIGNIFICANTLY REDUCE EXPENDITURES FOR OFFICE VISITS

CHANGES IN THE DISTRIBUTION OF HOSPITAL VISIT CODES

- CONSIDERABLE STABILITY IN HOSPITAL VISIT CODING DISTRIBUTIONS
- NET ESTIMATED 85/87 FINANCIAL IMPACT WAS 1.8 PERCENT INCREASE FOR FOLLOWUP HOSPITAL VISITS ONLY; -0.4 PERCENT FOR ALL HOSPITAL VISITS
- BECAUSE OF THE INFLUENCE OF AVERAGE LENGTH OF STAY, FOLLOWUP ONLY ESTIMATE IS A BETTER MEASURE OF POTENTIAL UPCODING THAN ALL VISIT MEASURE

FREQUENCY OF VISITS

- VISIT FREQUENCY PER ELIGIBLE INCREASED; VISIT FREQUENCY INCREASED MUCH LESS PER PART B CLAIMANT; VISIT FREQUENCY WAS RELATIVELY STABLE PER PART B CLAIMANT OF OFFICE MEDICAL CARE SERVICES

PROVISION OF ANCILLARIES

- FROM 1985/87 ALL EIGHT JURISDICTIONS EXPERIENCED AT LEAST ONE AGGREGATE INCREASE IN SERVICES ASSOCIATED WITH A CLAIMANT'S FIRST OFFICE VISIT OF THE YEAR--FROM 1983/85 THERE WAS LITTLE OR NO EVIDENCE FOUND OF INCREASED PROVISION OF ANCILLARIES IN CONJUNCTION WITH AN OFFICE VISIT
- MEDICAL CARE AS A TYPE OF SERVICE AND OPD AS A PLACE OF SERVICE WERE PRIMARY SOURCES OF INCREASE
- PATHOLOGY SERVICES DECREASED WITHIN INITIAL VISIT WINDOWS WHILE INCREASING IN AGGREGATE--POSSIBLE EVIDENCE OF PHYSICIAN PRACTICE OF PRE-VISIT TESTING
- THERE APPEARED TO BE A MAJOR INCREASE IN MINOR SURGERY, BUT THIS INCREASE WAS PRIMARILY A FUNCTION OF HCFA AUTHORIZED CHANGES IN VENIPUNCTURE CODES

MOST COMMON PROCEDURE CODES

- CONSIDERABLE CORRESPONDENCE BETWEEN THE STATES IN MOST COMMON CODES
- CODING SWITCHES DRIVE SOME OF THE CHANGES IN MOST COMMON CODES, VIZ., NEW CATARACT CODES, VENIPUNCTURE
- SPECTACULAR INCREASE IN VENIPUNCTURE FOR COLLECTION OF SPECIMEN WAS A FUNCTION OF REGULATORY CHANGE IN 1984 AND HCFA CODING CHANGE IN LATE 1985
- NEW TECH EVIDENT IN CATARACTS, FIBEROPTIC ENDOSCOPIES

CATASTROPHIC HEALTH CARE LIMITS [see Appendix]

- UNIFORM CATASTROPHIC HEALTH INSURANCE LIMIT WILL HAVE VERY DIFFERENT EFFECTS ACROSS STATES
- A MUCH LOWER LIMIT WOULD BE NEEDED TO PROTECT 7% OF BENEFICIARIES IN SOME RELATIVELY LOW COST STATES; THE INITIALLY PROPOSED LIMIT OF \$1375 MIGHT NOT HAVE PROTECTED 7% NATIONALLY IN 1990
- DISTRIBUTIONS OF ALLOWED CHARGES ARE VERY STABLE ACROSS STATES AND ACROSS YEARS

BACKGROUND

During the early parts of the decade of the 80's there were many Congressional efforts introduced ostensibly to reduce the rate of increase in Medicare payments for physician services. These acts included the Omnibus Reconciliation Act of 1980, the Tax Equity and Fiscal Responsibility Act of 1982 (TEFRA), the Social Security Amendments of 1983, the Deficit Reduction Act of 1984 (DEFRA), the Consolidated Omnibus Budget Reconciliation Act of 1986 (COBRA), the Omnibus Budget Reconciliation Act of 1986, and the Omnibus Budget Reconciliation Act of 1987. (The freeze on physician charges included in DEFRA was extended by Public Laws 99-107, 99-155, 99-181, 99-189, and 99-201.)

The freeze on physician charges was designed to limit the rate of increase in Medicare Part B expenditures. A year earlier, a major effort to limit Medicare Part A expenditures was initiated through a total change in hospital reimbursement policy. This change in the methods for reimbursing hospitals under the Hospital Insurance part of Medicare was introduced beginning October 1, 1983, and was almost completely initiated by the end of 1984. This innovative payment methodology changed hospital reimbursement from one of paying costs on a retrospective basis to payment of prospective expenses using the Diagnosis Related Groups (DRG) concept and mechanisms. Under this concept hospitals are reimbursed in predetermined amounts on the basis of about 470 DRGs.

A listing of the major actions taken during this time period that affected physician billing under Part B of the Medicare program would include the following:

1. Reimbursement was extended to include the costs of certain surgical procedures specified by the Secretary that were performed

- in ambulatory surgical centers, and, in certain circumstances, in physicians' offices. Physicians who accepted assignment for such procedures were to be reimbursed at 100 percent of reasonable charges, effective December 5, 1980.
2. Medicare would be the secondary payor in accident cases where care could be paid for under liability coverage or under no-fault insurance, effective December 5, 1980.
 3. Limits were imposed on reimbursement for markups of physician's bills for services performed by independent clinical laboratories, effective April 1, 1981.
 4. Medicare became the secondary payor [MSP] for employees aged 65 through 69 who were covered by health plan benefits of an employer, effective Jan 1, 1983. Carrier enforcement of this provision was increased through HCFA initiatives beginning in 1984. The upper age limit on MSP was eliminated as of May 1, 1986.
 5. Initiation of universal conversion to HCPCS begun in 1983;
 6. Payment methodology developed in 1983 for coverage of services provided in ambulatory surgical centers.
 7. Change in regulations that affected combined billing of charges for hospital costs and for services of hospital based physicians, implementation begun October 1, 1983;
 8. Initiation of the implementation of the Prospective Payment System for reimbursement of hospitals, October 1983;
 9. Initiation of the Peer Review Organization program, October, 1983.
 10. Prohibition against physicians billing for laboratory services not personally performed mandated by DEFRA, July 1, 1984;
 11. The annual database for calculation of the fee screens with respect to customary and prevailing charges was shifted from July 1 - June 30 to October 1 - September 30, with the first such fee screen year to begin October 1, 1984;
 12. Implementation of the physician fee freeze begun October 1, 1984;
 13. The Participating Physicians Program under which physicians agreed in writing to accept assignment of their bills under Part B of the Medicare program, begun on October 1, 1984.
 14. Fee freeze was lifted for participating physicians as of May 1, 1986; for non-par physicians as of January 1, 1987. Maximum Allowable Actual Charge [MAAC] limits were imposed on non-participating physicians' billed charges based on their submitted charges during the April/June quarter of 1984, effective January 1, 1987.
 15. Prevailing charges for cataract surgery were reduced by 10 percent (and an additional 2 percent in 1988), effective January 1, 1987. Reductions for certain "overpriced" procedures were not to go into effect until April 1, 1988.

The simultaneous operation of all these factors during the period under study makes it difficult to disentangle the separate causes of any changes observed in the data.

OVERVIEW OF DATA SOURCES AND SELECTION CRITERIA

This project was concerned only with bills for physician-provided services that were considered for reimbursement on a fee-for-service basis by Medicare carriers. However, carrier data processing systems are designed to process bills for all types of services, those provided by suppliers as well as physicians. Carriers generally accumulate and maintain processed and paid Part B fee-for-service bills in what is known as the "patient history" file. "Patient history" is maintained in health insurance claim (HIC) number order and in date of service sequence for calendar periods of at least 15 months to allow accumulation of bills for the annual period during which the annual \$75 deductible can be met.

The development of HCPCS and the successful tests of this system in South Carolina and Washington prior to 1983 resulted in the decision to encourage Medicare carriers to adopt and use HCPCS beginning in 1983. HCPCS made possible comparisons concerning the frequency and costs of physicians' (and suppliers') services across carriers and States. These services are described by procedure codes; however, until the advent of the use of HCPCS, comparisons of carrier data were very difficult as each carrier used a fairly unique procedural coding system. For this reason data collection for the

period 1983-1985 had been restricted to carriers that had available 1983 data coded according to HCPCS.

SELECTION OF STATES (CARRIERS)

As noted above only carriers that used HCPCS to code all billed Part B services provided during 1983 were considered for possible inclusion in the original study. These criteria limited the number of carriers that initially qualified for inclusion in the project. The carriers listed below met these criteria, agreed to participate in the project and agreed to supply, to the extent available in patient history, the data elements requested. Subsequently they provided data for each year through 1987 for the present project.

1. Blue Cross and Blue Shield of South Carolina
2. Washington Physician Services
3. Blue Cross and Blue Shield of Minnesota
4. Blue Shield of North Dakota which is also the carrier for South Dakota
5. Indiana Blue Shield

These carriers comprise the "five State" group for which data have been collected for the entire period of the project, 1983-1987.

By their inherent restrictiveness the criteria for initial selection of States would only fortuitously be representative of the distribution of all States as to size, geographic location, population density and the like. As it happens, no small sample of States is ever likely to be completely representative of the country as a whole.⁴

4 For a discussion of the degree to which the five sample States characterize the U.S. as a whole see Changes in Medicare Part B Physician Charges: Final Report, HHS Contract No. 100-85-0053, Volume I, ppg. 5 and 6. This report will hereinafter be referred to as the "initial report."

In order to improve the representativeness of the States under analysis it was decided to assemble to the extent feasible a longitudinal database of Part B claims from Pennsylvania Blue Shield, the Medicare carrier for Pennsylvania, Delaware, and the Washington, D.C. metropolitan area. In addition to the District of Columbia proper, the metropolitan area for Part B includes Montgomery and Prince Georges counties in Maryland and Arlington and Fairfax counties and the cities of Alexandria, Fairfax, and Falls Church in Virginia. Data from Pennsylvania Blue Shield have been collected for calendar year 1984 through 1987 inclusive. However, the actual initiation of direct use of HCPCS by the carrier to adjudicate and pay Medicare claims occurred at various times during 1984 for these three "States." For this reason these three jurisdictions are included as part of the "eight State group" beginning with calendar year 1985.

As mentioned above, data for that segment of Minnesota for which Minnesota Blue Shield is the carrier were collected for 1983-1987. Early in the analysis for the initial report it was evident that the 1983 Minnesota Blue Shield data were incomplete and thus could not be included in the 1983 - 1985 comparisons. In an attempt to include all of Minnesota in the current project, data for the remainder of Minnesota for which the Travelers Insurance Company is the carrier were collected for the years 1984 through 1987 inclusive. These Minnesota data were apparently incomplete for the years 1984 and 1985. For these reasons, Minnesota has not been included in the 1985-1987 comparisons.

DATA ELEMENTS

The Part B data for services provided during calendar year 1983 for Washington, South Carolina, North & South Dakota and Minnesota were collected during the first six months of 1984 as part of a project undertaken for HCFA to explore the development of a physician-oriented database. Data for these States for the years 1984 and 1985 were collected as part of the previous HHS project as was the 1983-1985 data for Indiana. The basic approach was continued in the data collection from 1986 and 1987 for those states. Data collected from Pennsylvania Blue Shield have also followed this approach.

The data elements that were defined as needed for the physician-oriented database were thus limited to those pertinent to physician-provided services. Carriers were requested to extract these data elements from their 1983 patient history files and to provide them according to specifications developed with their help during the course of the project. Codes and space requirements were specified to achieve a uniform format and sixteen data elements were provided by all carriers during this original collection of 1983 data. These data elements included those necessary for the analyses carried out for the current project and were, therefore, specified for collection of data for 1984 and 1985 as well. These data elements include: carrier number assigned by HCFA, provider number assigned by carrier, physician specialty code, beneficiary number (HIC), place of service, type of service, HCPCS code, modifier for HCPCS code, frequency of service, amount billed, amount allowed, from date of service, to date of service, and assignment code.

The patient history files from which these data were extracted contain all bills submitted for each Medicare beneficiary enrolled in Part B. The

files are segregated for each calendar year period during which the \$75 deductible must be met and thus each contains bills for all services provided during that calendar period. Bills used to meet the deductible are included in these data files and remain in the files. However, bills for unassigned claims below the deductible are only present if the beneficiary submitted them. Since allowed charges are used as the basis for defining physician charges and for the analyses of change, 1983-1985, inclusion of all physician bills enhances the completeness of the data, particularly the office visit data, without effecting bias. Allowed charges for physician services to employed beneficiaries for whom Medicare is the secondary payer (MSP) also remain in the files. While there are relatively few such bills, they can exert downward bias to estimates of total or average allowed charges, as the Medicare allowed charge in those cases is based on that portion of the bill not paid by the primary payer. We know of no way to identify MSP claims so as to eliminate these charges from the analyses. There is also a slight possibility that some enrollees covered by MSP might have all of their claims paid in full by their primary insurer.

DEFINITION OF PHYSICIAN SERVICES

We have defined physician services according to the HCPCS code contained on the bill. All level one HCPCS codes (CPT-4 codes) are included as are level two HCPCS codes preceded by the letters M, R, T, and V.⁵ No level three HCPCS codes are included as these are "local" codes described and used only by

5 These are level two codes for medical office services, radiology, surgical services, and vision services, respectively.

individual carriers. The codes retained for the study do include the services of independent labs. They do not include facility charges submitted to Part A intermediaries nor any other non-physician Part B services.

Each carrier was asked to provide all physician bills for services provided during each of the calendar years in question. However, South Carolina data for each year included only claims paid through December 31 of each year. Thus, most services provided during December are not included in the South Carolina data set and many provided during November are also missing. While these omissions are apparent in the analyses of monthly time trends, especially in the analysis of visit upcoding trends, these deficiencies do not bias the either the 1985/87 or 1983/85 comparisons for South Carolina.

TYPE OF SERVICE

Type of service [TOS] codes specified by HCFA are assigned by the Medicare carriers to each record of a physician provided service and to other Part B records as appropriate. During the years covered by this project [1983-1987] HCFA modified the specifications for TOS codes a number of times in order to keep them in step with adjustments in the coverages of the Part B program. However, to assure comparability over the five years, a minimal set of HCFA assigned TOS codes have been used in the analyses. These are as follows:

<u>HCFA ASSIGNED TOS</u>	<u>DESCRIPTION</u>
1	Medical Care
2	Surgery
3	Consultation
4	Diagnostic x-ray
5	Diagnostic laboratory
6	Radiation Therapy
7	Anesthesia
8	Assistance at Surgery
9	Other medical service
F	Ambulatory Surgical Center (facility usage)
H	Hospice
V	Pneumococcal vaccine
Y	Second opinion on Elective surgery
Z	Third opinion on Elective surgery

The set of all surgeries encompasses a large number of HCPCS codes including both major operative surgery and all other surgeries. For various reasons--in particular to allow a future study of substitutions between inpatient and outpatient care, the major operative surgeries were partitioned from the set of all surgeries based on the standard HCFA TOS code 2. For this reason, the procedure codes in HCPCS (level 1) in the range of 10000 to 69999 were divided so that those which, when translated to an ICD-9-CM code would lead to a surgical DRG assignment, were separately identified and assigned a TOS code B. All other surgical procedure codes in this range remained as TOS code 2. (There were also a set of HCPCS codes outside of the surgical services range--10000-69999--that were linked to surgical DRGs when performed for a hospitalized beneficiary. These codes were assigned a modified TOS code of S.)

Listed below are the TOS code modifications made by staff of The Circle:

<u>THE CIRCLE ASSIGNED TOS</u>	<u>DESCRIPTION</u>
B	Procedure codes in HCPCS (level 1) 10000-69999 range which, when translated to an ICD-9-CM code, would lead to a surgical DRG assignment.
J	Drugs other than chemotherapy (Injection or infusion).
S	Procedure codes in HCPCS (level 1) 70000-99999 range which, when translated to an ICD-9-CM code, would lead to a surgical DRG assignment.
T	Chemotherapy drugs (level 2) ("C" previously assigned by HCFA).
W	Code A2000 (HCPCS level 2)-Manipulation, spine, by chiropractor (reassigned 4/22/88).

DATA PREPARATION

Subsequent to the essential steps of ascertaining that the tapes received for any one year are readable, contain about the number of records expected for the beneficiary enrollment of a State and that data fields and their content are as specified, a few basic actions are taken to prepare the data tapes for use. First, all records containing HCPCS codes for other than physician services as defined above are eliminated from the file. Second, all records having an allowed charge of zero are discarded. For the most part these are records transferred by the carrier for allowed charge determination and payment by another carrier, principally to the carrier for Railroad Retirement eligibles. Third, those HIC numbers that contain other than A or B suffixes are changed to conform them to the HIC numbers contained in the updated Social Security files and in HCFA's Part A MEDPAR data files. This achieves HIC number consistency during a calendar year among all records for

an individual and assures that should matching of Part B and Part A records be necessary, an exact match can be accomplished. Also, the Type of Service codes are standardized so that the records from each carrier will contain the same Type of Service code for each procedure code. Finally, two additional steps were taken in our efforts to assure that only those records are included that are for services provided within the geographic area served by the carrier.

We had been advised by Pennsylvania Blue Shield (PBS) that bills for a very considerable number of laboratory specimens taken at various locations in a number of States during 1986 and 1987 were being submitted to PBS, the carrier for Delaware.⁶ Also, we were cognizant of the decision by HCFA to allow reimbursement for charges for venipunctures to obtain blood specimens. Finally, "central" laboratories are not only in Delaware.

Because records for such services might represent only a partial indication of care rendered to beneficiaries residing in other States, their inclusion in the data set could tend to bias downward estimates of the intensity of physician services in the eight sample States. The basis for identifying such claimants was the notion that no set of records was complete if it did not include at least one non-laboratory physician service not including a venipuncture. Therefore, to eliminate records for these laboratory services for beneficiaries not resident in each of the eight States, all beneficiaries with records of allowed charges for laboratory and/or venipuncture services only but no records for any other type of service during a calendar year were eliminated.

6 In particular, by special arrangement with the SmithKline Corporation, processing of claims from thirteen labs in nine states was consolidated through in Delaware operations of Pennsylvania Blue Shield.

Table 2 below provides the results of this process. For each jurisdiction there are one or two figures for each year shown. The top figure is the percentage of all claimants [having one or more records in the file when the initial steps described above were completed] who were subsequently removed because their records involved only laboratory services. The figure in the next line is the additional percentage of claimants removed from the files following elimination of those claimants whose only records included HCPCS code 36415 (routine venipuncture for collection of specimen(s)) and place of service independent laboratory as the only type of non-lab physician service record for that beneficiary.

To illustrate, we began this process with 398,746 claimants in metropolitan D.C. in 1987; reduced that number by 33 percent to 267,390 by eliminating those HIC numbers having allowed charges only for laboratory services with independent laboratory as the place of service; and finally reduced an additional 6 percent resulting in 242,631 beneficiaries remaining following elimination of those having allowed charges for venipuncture with place of service independent laboratory as their only non-lab physician service.

TABLE 2

PERCENTAGE OF CLAIMANTS ELIMINATED WITH RESPECT TO SELECTED
INCLUSION CRITERIA, SELECTED JURISDICTIONS, 1983/1987

	1983	1984	1985	1986	1987
5 STATES	1 1	2	3 3	3	3 3
8 STATES	1 1	6	8 9	11	15 17
PBS		9	12 14	17	22 26
METRO D.C.		21	30 36	32	33 39
DELAWARE		1	1 2	58	76 85

The elimination of arguably out-of-state claimants had relatively little effect in the aggregate five state group. There appeared to be more substantial effects among the Pennsylvania Blue Shield States. The significant change in Delaware can be seen in the 1986 and 1987 numbers as the SmithKline arrangement was implemented. The metro D.C. pattern suggests a continuing and increasing role of the out-of-state volume in that market.

Note that while beneficiaries were screened out with this process, many venipuncture service records were retained. For example, a claimant who received an office visit plus a venipuncture plus a lab test would have a record for each of those three services retained in the data set. By no means did removing venipuncture/lab only claimants remove all venipuncture records from the files. As will be mentioned below, retention of those records complicated the interpretation of results with respect to non-major surgery. In retrospect, recoding their type of service from non-major surgery to diagnostic laboratory test would have made simpler some of the analyses.

SURGICAL PROCEDURES

The same or very similar⁷ surgical procedures result in the highest expenditures in the eight States in this study. There have been some changes in the relative rank as to expenditures for specific procedures over the five year period of the study. At the same time, cataract extractions with lens implant (however described) and transurethral resection of prostate have ranked first and second, respectively, in each State during the period.

We identified those specific HCPCS surgical procedure codes with allowed charges in each State that ranked within the top ten in total costs across all places of service provided during 1983, 1985, and 1987 calendar years. For 1983 five States are included, for 1985 and 1987 eight states are included. The rankings are shown in tables 3.

⁷ For example, surgical techniques for extraction of cataracts underwent significant development during the period 1983-1987 under study. These changes resulted in the elimination from HCPCS after 1984, of a general description procedure code 66980 (cataract extraction with lens implantation). Two more specific codes, 66983 (intra-capsular...) and 66984 (extra-capsular...) cataract extraction/removal with insertion of intraocular lens prosthesis, replaced 66980. Only one carrier (Blue Shield of North Dakota) strictly observed this updating of HCPCS.

TABLE 3

SURGICAL PROCEDURES WITHIN THE TOP 10 RANK ORDER IN TOTAL
APPROVED CHARGES WITHIN ANY STATE, SELECTED STATES, 1983-
1987

1983

<u>Code</u>	<u>Description</u>	<u>IN</u>	<u>ND</u>	<u>SC</u>	<u>SD</u>	<u>WA</u>
66980	Cataract Extr. W/lens implant--one step	1	1	1	1	1
52601	Transurethral resection of prostate (TURP)	2	2	2	2	2
27130	Total hip replacement	3	4	4	3	3
27244	rx hip fx, troch. W/int. Fixation	7	8	5	5	6
33513	CABG 4 grafts	5	5	9	8	8
27447	Total knee replacement	10	3	14	4	7
33512	CABG 3 grafts	4	7	3	23	4
43235	Upper GI endoscopy, dx.	6	12	6	6	12
27236	Rx hip fx, neck w/int. Fix/pros. Replacement	8	9	13	9	9
35301	thromboendarterectomy - neck incision	9	6	16	16	5
44140	colectomy w/anast.	11	13	8	12	10
43239	Upper GI endoscopy with biopsy/specimen	13	10	11	18	16
47605	Cholecystectomy w/wholangiography	14	14	7	21	13
47600	Cholecystectomy	12	15	21	10	43
33514	CABG 5 grafts	17	11	-	7	19
66920	Extraction of lens, intracapsular approach	18	48	10	15	17

TABLE 3 Surgical Procedures within the Top 10 Rank Order in Total
Approved Charges within any State, Selected States, 1983-
1987

1985

<u>Code</u>	<u>Description</u>	<u>DC</u>	<u>DE</u>	<u>IN</u>	<u>ND</u>	<u>PA</u>	<u>SC</u>	<u>SD</u>	<u>WA</u>
66980*	Cataract extraction w/lens implant - one step	1	1	2	-	1	1	-	1
66984	Cataract extraction - extracapsular	-	-	1	1	-	3	1	3
66983	Cataract extraction - intracapsular	-	-	3	2	-	10	2	15
52601	TURP	2	2	4	3	2	2	3	2
27130	Total hip replacement	8	5	6	5	5	8	5	6
27447	Total knee replacement	12	7	10	4	3	9	4	7
43235	Upper GI endoscopy, dx.	6	10	9	11	4	6	9	12
27244	Rx hip fx, troch. W/ int. Fixation	10	9	8	10	8	7	7	9
33513	CABG 4 grafts	4	-	5	6	9	5	8	8
44140	Colectomy w/anast	7	6	13	21	12	12	16	11
35301	Thromboendarterectomy - neck incision	17	18	11	7	15	15	13	4
43239	Upper GI endoscopy with biopsy/specimen	5	13	14	9	11	16	18	12
27236	Rx hip fx, neck w/int. Fix/pros. Replacement	13	11	12	12	23	18	11	10
33512	CABG 3 grafts	3	-	7	8	7	4	43	5
45385	Fiberoptic colonoscopy for removal lesions/polyps	11	3	19	16	14	14	-	13
45378	Fiberoptic colonoscopy, dx.	9	8	15	20	10	13	29	-
33514	CABG 5 grafts	23	-	17	15	20	32	6	18
33207	Perm. ventric. pacemaker	43	44	31	17	25	17	10	39
22500	Manipulation of spine w/o anesthetic	-	4	-	-	6	-	-	-

* Code deleted in 1985 CPT-4 but still in use. Replaced by 66983 and 66984.

TABLE 3 Surgical Procedures within the Top 10 Rank Order in Total
Approved Charges within any State, Selected States, 1983-
1987

1987

<u>Code</u>	<u>Description</u>	<u>DC</u>	<u>DE</u>	<u>IN</u>	<u>ND</u>	<u>PA</u>	<u>SC</u>	<u>SD</u>	<u>WA</u>
66984	Cataract extraction - extracapsular	1	1	1	1	1	1	1	1
52601	TURP	2	3	2	2	2	2	2	2
27447	Total knee replacement	13	7	8	3	3	7	3	5
27130	Total hip replacement	10	8	6	4	8	8	4	6
45378	Fiberoptic colonoscopy, dx.	9	5	10	8	5	9	12	12
43235	Upper GI endoscopy, dx.	6	10	7	9	6	6	10	13
33513	CABG 4 grafts	4	-	5	7	7	5	5	3
27244	Rx hip fx, troch. W/ int. Fixation	18	9	9	10	13	10	8	11
45385	Fiberoptic colonoscopy for removal lesions/polyps	8	2	19	16	14	14	-	13
66821	Laser - second cataract	28	29	3	5	16	4	7	10
33512	CABG 3 grafts	3	-	4	6	4	3	32	4
44140	Colectomy w/anast	12	6	18	21	14	15	20	16
43239	Upper GI endoscopy with biopsy/specimen	5	22	11	13	9	12	29	9
45330	Fiberoptic sigmoidoscopy, dx	21	13	15	14	27	11	9	19
66983	Cataract extraction - intracapsular	11	18	20	-	12	21	6	7
67228	Laser coag. Retinopath	7	14	27	27	11	22	14	25
35301	Thromboendarterectomy - neck incision	29	26	13	12	26	20	23	8
36415	Routine venipuncture	15	4	22	11	23	-	15	-

Changes in medical practice can be seen within the set of procedure codes for the various cataract surgery techniques, with extracapsular cataract removal with insertion of intraocular lens prosthesis becoming the method of choice with about 85% of extremely large expenditures for this procedure in outpatient departments of hospitals. And one or the other of the two fiberoptic colonoscopies (diagnostic, or for removal of lesion/polyps) that were not ranked in the ten highest cost procedures in any of the five States during 1983, were so ranked in all but one of the eight States during 1987.

The relative cost of the highest cost procedure (cataract extraction with lens implant) was about five times that of the next most expensive

procedure (transurethral resection of prostate) in each of the eight States. Coronary artery bypass grafts (CABG) were easily the next most expensive set of procedures in all of the States in all years. By 1987 CABG 3 grafts ranged between third and sixth most expensive in all States (except South Dakota) and CABG 4 grafts ranged between third and seventh in all States. Total knee replacement ranked between third and eighth in all States except metropolitan DC (13th) and total hip replacement between fourth and tenth in all States. A high degree of consistency in relative costs of the leading eight procedures is apparent among the States in our data set.

Delaware, where few if any CABG procedures were provided had a somewhat different sequence of highest total cost procedures. In particular, it was also the state most affected by the change in coding for routine venipunctures. The impact of venipuncture, both before and after deletion of records with laboratory examination as the only procedure(s) provided in Delaware for a beneficiary, reflects the effect of the change in payment regulations and coding conventions with respect to this procedure. In the original data, venipuncture was the fourth most common surgical procedure. Correcting for venipuncture only patients drops more than 350,000 instances of venipuncture claims. Were this study to be redone, venipunctures would be reclassified as a laboratory service rather than a non-major surgical procedure.

1983/1985/1987 COMPARISONS OF UTILIZATION AND EXPENDITURES

For the initial study, in the examinations of the data from the years 1983, 1984, and 1985, there appeared to be a discontinuity in year to year growth rates. For many of the States there was a relatively moderate increase in claims in 1984 compared to 1983, and a much larger increase with 1985 compared to 1984. It was also known that the use of medical care services nationally was relatively low during 1984. For example, that year for the first time, there was a refund of premium in the massive Federal employees health insurance system. In general, 1984 appeared to be an atypical year, if only because while there were continuing increases in approved charges pre-1984 and post-1985, these were not so apparent in 1984.

Given the number of simultaneous program changes instituted in late 1983 and 1984 and the initial availability of data through 1985 only, it was decided to focus on the 1983-1985 comparisons as potentially more representative of long term trends.⁸ While it was decided to drop use of the 1984 data in the comparisons of utilization and expenditures, the 1984 data were used in carrying out the relative distribution analyses, e.g. in examining the distributions of the levels of visit upcoding.

Partly for this type of reason, the present study focuses for the most part on comparisons between 1985 and 1987. This allows for a presentation and

⁸ Given that simultaneity of program interventions and the likely variability in lag times to the effects of those interventions, disaggregating the data into quarterly or even monthly time periods would be unlikely to clarify the evidence at hand. In fact, in comparing data from one time period to the same time period one year later, one is left with the presumed atypical 1984 observations to muddle a whole series of comparisons.

CHAPTER 10: THE HISTORY OF THE UNITED STATES

The history of the United States is a complex and multifaceted story that spans centuries. It begins with the first human inhabitants, who arrived in North America thousands of years ago. These early peoples lived in small, nomadic groups and relied on hunting and gathering for survival.

Over time, these groups evolved into more complex societies, including the Mississippian culture, which flourished in the Southeastern United States. The Mississippian culture was characterized by its advanced agriculture, particularly the cultivation of corn, and its complex social structure.

The arrival of European explorers in the late 15th century marked the beginning of a new chapter in the history of the United States. These explorers, including Christopher Columbus and John Cabot, sought to establish trade routes to the East Indies, but instead discovered a new world.

The early years of European settlement were marked by conflict and hardship. The first colonies were established in the Northeast, and the settlers faced numerous challenges, including disease, lack of food, and conflict with Native Americans.

Despite these challenges, the colonies grew and developed. By the mid-18th century, the colonies had become more self-sufficient and more organized. They began to assert their independence from British rule, leading to the American Revolution.

The American Revolution was a pivotal moment in the history of the United States. It resulted in the colonies gaining independence from Britain and the establishment of a new nation. The new nation was founded on the principles of liberty, justice, and equality.

The early years of the new nation were marked by growth and development. The United States expanded its territory westward, and the economy began to flourish. The nation also faced numerous challenges, including the issue of slavery and the question of statehood.

The mid-19th century was a period of great change and conflict for the United States. The Civil War, which lasted from 1861 to 1865, was a pivotal moment in the nation's history. It resulted in the abolition of slavery and the preservation of the Union.

The late 19th and early 20th centuries were marked by rapid growth and development. The United States became a world power, and its influence was felt around the globe. The nation also faced numerous challenges, including the issue of immigration and the question of civil rights.

contrast of the two two year periods, which is useful. Further, while 1986 may not have seen the dislocations occurring during 1984, the year was not uneventful. The Medicare fee freeze was lifted during that year, there were two separate Participation periods during that year, and changes in claims processing times produced a sine wave pattern in volume by dates of payment that might have also affected physician/beneficiary behavior by dates of service. As with 1984, the 1986 data were used for the analyses of visit upcoding only, while the bulk of the comparisons were focused on the 1985/1987 time frame.

MEASURES OF VISIT UPCODING AND PROCEDURE UPCODING

As developed for our initial report, the term "upcoding" is intended to include the wide variety of non-price phenomena having the effect over time of increasing average charges per service within a category of closely related services. Thus upcoding would not include increases in average approved charges due to a fee screen year update. With respect to office visits, it would include an increase in average approved charges if the distribution across the six alternative visit categories had changed, controlling for any fee screen update. With respect to surgical procedures, a change in the distribution of codes that increased the average allowed charge for a

particular category of surgery due to physicians' increasing use of newer technologies would also be included as upcoding.⁹

In order to examine the question of whether upcoding of visits occurred, we examined the distribution of billed office visit codes over time. If upcoding occurred, we would expect to see a greater frequency of complex office visits billed. However, if one observes such a pattern in the data, it does not necessarily mean that deliberate upcoding of office visits by physicians occurred, since there are a variety of other phenomena that could produce such a pattern. For example, physicians increasing their actual time spent with patients would also produce an upward shift in procedure codes over time. Therefore, by finding increased frequency of billing of more complex codes, we cannot say what percentage of the apparent increase might have resulted from deliberate upcoding and what percentage resulted from these other related phenomena. Undoubtedly some of each occurred in some unknown mixture.

In addition to the inclusion of three more jurisdictions, there are two changes that were introduced for the analysis of visit upcoding: the methodology for estimating the financial impact of upcoding was refined, and

9 In the initial report an explicit analysis of procedure upcoding was conducted. Examining ten sets of specific related procedure codes (e.g., all colonoscopies), the aggregate annual financial impact of procedure upcoding from 1983 to 1985 was estimated at 0.36 percent. This result was primarily due to what appeared to be technological changes involving one of the ten procedure groups, open prostatectomies. The remaining nine code groups exhibited an aggregate change of 0.28 percent, and included apparent downcoding in sixteen of fortyfive state/procedure comparison cells involving eight of those nine codes and each of the five states. While this analysis could have been repeated using the 1985 and 1987 data, there were some additions and deletions of CPT-4 codes involving six of the ten sets of codes that would have restricted the analysis. For this reason, and given the basic stability in the coding distributions from 1983 to 1985 this analysis was not repeated.

the analysis was extended to hospital visits. The refined methodology involves computing annual upcoding estimates using each year as the baseline for the next year within the framework of a volume weighted Laspeyres quantity index.

In the initial report upcoding estimates were not prepared for hospital visits because of the presumed effects of PPS. In particular, reductions in length of stay could be expected to be concentrated at the ends of the stays, reducing the proportion of relatively low priced followup visits and increasing the proportion of relatively expensive initial visits. Further, if relatively uncomplicated admissions were eliminated, the distribution of both initial and followup hospital visits might be expected to increase in intensity. Both of these phenomena would have the effect of biasing upward estimates of upcoding. In examining the hospital visit data, these expected effects are confirmed.

OFFICE VISIT UPCODING

Within the set of followup office visits there are six levels of service: minimal, brief, limited, intermediate, comprehensive, and extended. It is commonly believed that the intention of this array is to connote a hierarchy of levels of time and effort on the part of the physician and that payments vary accordingly. It has been hypothesized that if fees were restricted or frozen, a physician might try to evade such limits by relabeling visits upward within this hierarchy.

VISIT UPCODING IN SELECTED STATES

Data were assembled from eight jurisdictions covering the period from January 1983 or January 1984 to December 1987. The data on followup office visits was partitioned from that of all other services, and identified by month of service. To perform the initial examination of potential visit upcoding, cumulative distributions¹⁰ of these office visits were prepared for each jurisdiction. If upcoding of claims for followup office visits had occurred, one would expect to observe upward shifts in the cumulative distributions of office visits in these States. An upward shift might have occurred for reasons other than deliberate physician attempts at revenue maximization, but without an upward shift an inference of visit upcoding would be impossible.

In the initial report the pattern that emerged in four of six States was one of stability rather than upcoding. The patterns in the distribution were more horizontal than downward sloping. South Carolina was the most stable and the most uniform. Roughly three quarters of the visits provided in that State were limited visits. North Dakota was also relatively stable with a plurality of visits being brief. Washington's distribution showed a slight visit upcoding in that the percentage of brief visits declined over this period.

More of a hint of visit upcoding was observed in the distribution from South Dakota. In January 1983, minimal and brief visits constituted more than half of all followup office visits. By December 1985, those visits had fallen to less than 40 percent of the total. Indiana, however, was the one State that appeared to match the stereotype of upcoding. In January 1983, minimal

10 These are referred to as McMenamin distributions.

visits were nearly 60 percent of the total. By December 1985, minimal visits were less than 20 percent of the total. Both minimal and brief visits declined in absolute volume while total followup office visits increased each year.

The addition of two more years of data and three new jurisdictions reinforces the impression of relative stability (although not uniformity) in the distribution of office visits. Some amount of upcoding, as estimated below, continued in all jurisdictions, but the net impact over the 1985-1987 time period was 1.6 percent of total approved charges for followup office visits in 1987 in those jurisdictions. (Examining the original five States only, the net impact over the 1985-1987 period was 2.5 percent, compared to 3.7 percent from 1983-1985.) The patterns of change on an annual basis are portrayed in the McMenamin distributions of Figure 1.

It was hoped that an analysis of the complete data from 1984-1987 would be possible, but data anomalies from the Pennsylvania Blue Shield jurisdictions revealed that that carrier did not complete the conversion to regular use of HCPCS until January 1985. The 1984 data from this carrier are coded in HCPCS, but they obviously were not recorded in HCPCS during all of that year. The data recording processes from metropolitan Washington, D.C. and Delaware were converted in August/September 1984, while that for the State of Pennsylvania as a whole was not converted until January 1985. Thus one cannot get accurate estimates of upcoding in those jurisdictions between 1984 and 1985.

The five State data exhibited a moderation in upcoding in 1985-1987 compared to 1983-1985. Indiana, which had the highest upcoding estimates during the initial time period, continued to rank highest, but its

distribution of office visits appears to be plateauing at or near the levels exhibited in the State of Washington. Further, the upcoding estimates from the initial report are probably considerably overstated as a result of what in effect was downcoding introduced during the conversion to CPT-4.¹¹

ESTIMATING THE FINANCIAL EFFECTS OF UPCODING

In the initial report the methodology used to estimate the financial impact of any upcoding as might have occurred required determining the 1983 distribution of services within a set of related services to establish a baseline for 1985. Actual total approved charges in 1985 were compared to the approved charges that would have been expected with the 1985 volumes and 1985 unit approved charges, but with the 1983 distribution. This methodology was developed in July 1987.

This approach made sense given the limited number of carriers with identically time-spanned data sets and the limited time period involved. With more States and with data sets with different base years available, the use of a single base period would not have been possible. In addition, given the arbitrariness of the choice of a base period, the further removed the time

11 Discussions with the Medicare Medical Director from Indiana (Adrian Oleck, M.D., Indiana Blue Cross Blue Shield, private communications, May, 1989.) suggest that much of the apparent upcoding in that State may have resulted from a decision made for the conversion to HCPCS in 1983. Prior to that time the carrier used a local system of coding not based on either CPT, the NABSP system, or the CRVS. In translating from that system to HCPCS, the most common old code [0600] was assigned to the new HCPCS code for minimal visits [90030]. The second most common code [0601] was assigned to limited visits [90050]. A remaining visit code [0602] was assigned to the CPT-4 code for a comprehensive service [90080]. In January 1983, nearly 60 percent of followup office visits were coded as minimal visits while nearly 25 percent were coded as limited visits. By 1987 those percentages were 9 and 46, respectively.

period in question is from the baseline, the less relevant is that baseline for understanding changes in the distribution of codes.

The refined methodology used for this report involves computing annual upcoding estimates using each calendar year as the baseline for the next year. As with the previous index approach, each index is a volume weighted Laspeyres quantity index. Aggregate estimates over time can be computed by chaining the individual year estimates. Over short periods of time the chained estimates are virtually identical to estimates computed using a single fixed base year.

Table 4 presents the estimated net effects of changes in the visit distribution on total allowed charges in the eight jurisdictions both as a whole and individually, and for the original five States. In each of these States, the estimated effect was positive, that is, total allowed charges were higher in 1987 than they would have been had the prior distributions been preserved.

The patterns observed in the Pennsylvania Blue Shield States appear even more stable than those of the original five States. Since approximately 60 percent of the 1987 data derive from the State of Pennsylvania alone this state drives the aggregate average even more than Indiana determined the average for the five States in the 1983-1985 data.

Using this approach we have estimated that total approved charges for followup office visits were \$4.6 million dollars higher than they would have been in 1987 had the 1985 distribution of visits been maintained. This amounts to 1.6 percent of total approved charges for office visits in that year, and 0.6 percent of the increase in total approved charges for all physician services in the eight jurisdictions between 1985 and 1987.

TABLE 4

ESTIMATED ANNUAL AND CUMULATIVE TWO YEAR PERCENTAGE EFFECTS OF
VISIT UPCODING ON MEDICARE TOTAL ALLOWED CHARGES FOR FOLLOWUP
OFFICE VISITS, SELECTED JURISDICTIONS, 1984-1987.

	Annual				Cumulative	
	83/84	84/85	85/86	86/87	83/85	85/87
8 STATE AGGREGATE	NA	NA	0.7	0.8	NA	1.6
5 STATES ONLY	1.2	2.4	1.2	1.3	3.7	2.5
METRO DC	NA	NA	0.6	0.3	NA	0.9
DELAWARE	NA	NA	0.5	0.7	NA	1.3
INDIANA	3.0	4.6	2.5	1.8	7.7	4.3
NORTH DAKOTA	1.0	1.0	-0.8	2.7	1.9	1.9
PENNSYLVANIA	NA	NA	0.4	0.5	NA	0.9
SOUTH CAROLINA	-0.3	0.9	0.2	0.4	0.7	0.6
SOUTH DAKOTA	1.6	2.2	0.5	2.2	3.8	2.6
WASHINGTON	0.3	1.4	0.9	0.9	1.7	1.8

OVERCODING

While in each jurisdiction the distribution of followup office visits appears to be relatively stable over time, the individual jurisdictions are relatively stable with very different distributions. Indiana--most likely by the accident of translation tables--exhibited the highest percentage of "minimal" visits in 1987. On the other hand, it exhibited the lowest percentage of "comprehensive" followup office visits. North Dakota is the most "brief" visit intensive, with that category accounting for nearly half of all of its followup office visits. South Carolina is "limited" visit intensive with more than three quarters of the volume in that category. Among the original five States, all but North Dakota exhibited at least a plurality of visits in the "limited" category. In contrast, the Pennsylvania Blue Shield States are all "intermediate" visit intensive. Delaware has nearly a

majority of its visits in this category, while in both the District of Columbia and Pennsylvania this category accounts for nearly two thirds of all followup visits.

Given the similarities between the eight jurisdictions on many other distribution statistics, these differences are somewhat puzzling, especially because they do not appear to be random fluctuations—they represent patterns that are stable over time. This phenomenon does call to attention the question of justification for such differences.

In this regard, we propose a distinction be made between changes in the distribution of codes over time and differences between two or more jurisdictions in their distributions of codes at a single point in time. The label for the first would remain "upcoding." We would call the second "overcoding." (Often the second phenomenon is referred to as upcoding in the sense that a code used on a particular claim might be higher than it ought to be rather than higher than it used to be for a comparable case in a previous time period. The phrase appears to be used in the sense that a physician may have "upcoded" the claim.) We prefer that the distinction be maintained between the two phenomena because overcoding without upcoding is theoretically possible, as is upcoding without overcoding.

What are the financial consequences of overcoding? There is no precise answer to this question because the "proper" distribution of followup office visit codes is unknown. One can use the index approach, however, to estimate the consequences of a shift from one distribution of codes to another. In particular, we have estimated the change in total approved charges that could be expected in each of the eight jurisdictions if the distribution of codes in those States could be changed to that observed in any single State. We have

also estimated the total aggregate effect for the United States based on BMAD summaries.¹²

The estimated effects are a function of both the existing distribution of visits and the average approved charge per service in each jurisdiction. Thus, for example, changing the North Dakota distribution to that of South Carolina would increase total approved charges in that State while at the same time changing the South Carolina distribution to that of North Dakota would also produce an increase. The estimated U.S. effects are somewhat artificial because they rely on both visit distributions and approved charges averaged across all States. A more accurate set of estimates would require data on the visit distributions and approved charges in each State.

The results, shown in Table 5 indicate for 1987 that metropolitan D.C., for the most part, has the most expensive distribution of followup office visits. Imposing the D.C. distribution on any of the other seven jurisdictions would increase average approved charges. The aggregate effect would be an increase of 6.4 percent, with North Dakota increasing by 32 percent and South Carolina increasing by 41 percent. For the United States as a whole there might be an increase of 11.9 percent. North Dakota, for the most part, has the least expensive distribution of followup office visits. If all of the eight jurisdictions retained their 1987 average approved charges per service for followup office visits but were able to achieve the North Dakota distribution of followup office visit codes, there would be a net decline in approved charges of 13.3 percent. This would amount to a reduction of approximately \$39.5 million, or 1.2 percent of total approved charges for

12 BDMS, Data Compendium on Physicians and Other Non-institutional Suppliers, Spring 1989.

all physician services. The U.S. effect would be of a comparable percentage, 14.0.

TABLE 5

ESTIMATED PERCENTAGE EFFECTS* OF FOLLOWUP VISIT RELATIVE OVERCODING ON MEDICARE TOTAL ALLOWED CHARGES FOR FOLLOWUP OFFICE VISITS, SELECTED JURISDICTIONS AND UNITED STATES TOTAL (BASED ON BMAD), 1987.

Jurisdiction Distribution used to Estimate the Change in Total Approved Charges for Followup Office Visits									
	DC	DE	IN	ND	PA	SC	SD	WA	USTOT*
"8-S"	6.4	-0.8	-6.2	-13.3	1.2	-5.9	-8.2	-2.5	-1.1
DC	0.0	-6.7	-11.5	-20.6	-5.1	-10.5	-14.3	-7.8	-6.9
DE	5.3	0.0	-5.0	-9.8	2.0	-4.9	-5.9	-1.8	-0.7
IN	9.4	3.7	0.0	-4.7	4.3	1.4	-1.0	3.2	4.1
ND	32.1	19.3	11.1	0.0	23.1	10.1	7.3	16.6	19.1
PA	4.5	-1.3	-5.2	-12.4	0.0	-4.0	-7.5	-2.0	-1.1
SC	41.0	24.1	8.0	0.5	31.7	0.0	7.5	14.7	19.5
SD	17.9	9.1	2.7	-6.7	11.4	4.5	0.0	7.9	9.3
WA	15.5	4.1	-5.5	-13.7	8.2	-7.3	-7.2	0.0	2.6
USTOT	11.9	2.1	-7.0	-14.0	6.1	-9.6	-8.3	-2.4	0.0

* For example, imposing the Indiana distribution of visits in the District of Columbia would decrease charges in metropolitan Washington by 11.5 percent. Imposing the DC distribution in Indiana would increase Indiana total charges by 9.4 percent.

* Based on total U.S. BMAD data from 1987.

As with the discussion of office visit upcoding in the initial report, there may be some question of the representativeness of the States included in this sample. None of the jurisdictions exactly match the U.S. aggregate distribution--no one State of the 50 does--but they do represent some of the variations exhibited among the individual States in the country.¹³

13 Bart Flemming, Presentation on HCFA Statistics on Coding Distributions, Presented to the AMA Ad Hoc Committee on Visits and Levels of Service, Washington, DC, December 14, 1988.

Estimating the effects of bringing each of the eight jurisdictions to the U.S. aggregate distribution brought some surprises. Pennsylvania, the largest State in the sample would experience a decrease in total office visit charges of 1.1 percent. In fact, all of the Penn Blue Shield jurisdictions would experience decreases. South Carolina would experience the greatest increase, 19.5 percent, while North Dakota would increase by 19.1 percent. This suggests that the original five States, including Indiana, may have exhibited somewhat inexpensive office visit distributions relative to the national average.

Not all of these hypothesized changes in visit distributions would make major changes in total approved charges. In many instances, "adjacent" codes within the hierarchy exhibit virtually identical average approved charges. With the conversion to HCPCS, some physicians may have identical customary charges for adjacent codes given the crosswalk to HCPCS codes from a smaller number of office codes in the carrier's predecessor coding system. Without price separation, the code distributions would have no financial impacts. Nonetheless, the existence of variations in these distributions has been verified, both here and through other sources. The financial impact of making those distributions more uniform at either the average or a below average distribution might be such as to produce significant program savings.

HOSPITAL VISIT UPCODING

Upcoding estimates for hospital visits were not prepared for the initial report because of the presumed effects of PPS. In particular, reductions in length of stay due to PPS could be expected to be concentrated at the ends of hospital stays, reducing the proportion of relatively low priced followup

visits and increasing the proportion of relatively expensive initial visits. Further, if relatively uncomplicated admissions were eliminated due to PPS, the distribution of both initial and followup hospital visits might be expected to increase in intensity. Both of these phenomena would have the effect of biasing upward estimates of upcoding.

While the theory in this case is clear, in practical terms, the potential effects on estimates of hospital upcoding of changes in lengths of stay was an unresolved empirical issue. For this reason, the following analyses were conducted to demonstrate and verify those effects.

One partial way of addressing the issue would be to examine separately followup hospital visits only. Each stay has to have an initial visit, which is typically given a higher approved charge than a followup visit. Since there can be at most one initial visit per stay, one might establish estimates of hospital upcoding for followup visits only. As long as average length of stay were declining, one would expect estimates of upcoding based on hospital followup visits only to be smaller than upcoding estimates based on all hospital visits.

TABLE 6

ESTIMATED ANNUAL PERCENTAGE EFFECTS OF HOSPITAL VISIT UPCODING FOR FOLLOWUP VISITS ONLY AND FOR ALL VISITS, SELECTED STATES, 1983/84 THROUGH 1986/87;
STATE AGGREGATES, 1983/85 AND 1985/87

	FOLLOWUP VISITS ONLY				ALL HOSPITAL VISITS			
	83/84	84/85	85/86	86/87	83/84	84/85	85/86	86/87
DC	NA	NA	0.1	0.2	NA	NA	0.2	0.2
DE	NA	NA	0.6	-0.3	NA	NA	0.7	-2.1
IN	2.9	3.8	2.4	8.8	5.2	4.4	2.0	0.5
ND	1.5	0.8	0.0	2.7	5.6	2.7	0.0	4.2
PA	NA	NA	0.1	0.0	NA	NA	-0.4	-0.9
SC	-0.1	-0.2	0.1	2.2	1.5	-0.4	0.1	1.5
SD	1.6	1.0	0.3	0.7	5.2	2.2	0.5	-19.5
WA	0.5	1.6	1.4	1.5	1.7	1.9	1.0	1.1
	83/85		85/87		83/85		85/87	
8 STATES	NA		1.8		NA		-0.4	
5 STATES	3.8		6.6		6.3		1.3	

The estimates shown in Table 6 tend to confirm the theoretical expectations. Average lengths of stay were declining following 1983, and upcoding estimates tend to be smaller for followup visits only than the corresponding estimates for all visits. Estimated medical average lengths of stay¹⁴ have fluctuated since 1985 with increases occurring between 1986 and 1987 in all of these jurisdictions except North Dakota. For 1986/87 North Dakota is the only jurisdiction where the all visit hospital upcoding estimate exceeds the followup visit upcoding estimate.

The range of values for hospital visit upcoding in these jurisdictions is small, generally less than 2 percent per year. Some States appeared to

¹⁴ Note that hospital visits should primarily be coded for hospitalizations involving medical DRGs. (On occasion there may be hospital visits billed by a surgical patient's medical specialist.) Further, there should be one and only one initial visit for each hospitalization. One can therefore estimate an average length of stay for medical admissions by dividing the total number of hospital visits by the number of initial hospital visits.

exhibit downcoding, although this may be associated with increasing average lengths of stay. The McMenamin distributions for the most part are relatively stable. The Pennsylvania Blue Shield States, in particular, exhibit very flat distributions. Indiana shows a pattern of downcoding during the first five months of 1983, perhaps when the HCPCS conversion was undertaken. This is followed by a pattern of upcoding beginning to plateau by 1987. South Carolina's increase in upcoding begins rather abruptly in June/July 1987 with an increase in the relative frequency of both extended followup visits and discharge day visits. South Dakota's pattern is more complicated. Over the five year period, brief visits [90240] have consistently declined. Intermediate followup visits [90260], on the other hand, increased in relative frequency from 1983 through 1985, but they declined in both 1986 and 1987. Limited visits [90250] have appeared to substitute for intermediate ones since the beginning of 1986.

Over the 1985/87 time period the net financial impact of hospital followup visit upcoding in the eight States was 1.8 percent. For all hospital visits the aggregate results are consistent with downcoding with an estimated impact of -0.4 percent. In both cases, the results are virtually dictated by the Pennsylvania results. The cluster of results from the other seven jurisdictions suggests that upcoding in hospital visits of all kinds from 1985 to 1987 may have been in the range of 1 to 2 percent. The total estimated financial impact of 1985/87 hospital followup visit upcoding in the eight jurisdictions was roughly \$5.6 million, or 1.7 percent of total approved charges for physician services in those jurisdictions in 1987.

In fact, as we hypothesized in the initial report, hospital visit upcoding estimates may not be a good vehicle for understanding changes in

billing behaviors with respect to that place of service. The Pennsylvania results are illustrative. Because of apparent downcoding between 1985 and 1987, total approved charges in that State were more than \$3 million lower than they would have been if the prior years' distributions of charges had been maintained throughout 1987. On the other hand, the estimated average medical length of stay increased from 11.0 to 12.7 days between 1985 and 1987. If the 1987 admissions were maintained at the 1985 average length of stay, there would have been more than 922 thousand fewer hospital visits in Pennsylvania in 1987 with a minimum savings of \$20.3 million dollars. Length of stay is far more important than apparent upcoding in understanding the sources of changes in approved charges.

VISIT UNBUNDLING: INITIAL VOLUME CHANGES

One might conjecture that an alternative to visit upcoding might involve visit unbundling. Physicians might direct their patients to return for additional followup visits, using these followup visits to replace the revenues that might otherwise have been derived from fee increases. One would expect to observe increases in visit volume over the course of the fee freeze if this be a correct hypothesis.

In the initial report one did observe increases in followup office visit volume in each of the five sample States over the 1983/85 time period. The increases ranged from an increase of nine percent in North Dakota to eighteen percent observed in South Carolina. Since, of course, some of this increase was due to increases in the eligible population, the totals were deflated to account for population growth over the time period. In addition, to correct for potential patient in- and out-migration a crude adjustment was adopted. Data from the PSRO program were used to identify net patient inflows or outflows by State.

When adjusted for patient eligible populations, the resulting statistics revealed a slight increase in volume over the 1983/1985 period. As recomputed and displayed in Table 7, there was an increase in the five States of approximately 8 percent in followup office visits per beneficiary per year. The 1985/87 increases were larger in the five States, at more than 10 percent. The increase for the eight State group was 7.2 percent.

TABLE 7

VOLUMES AND GROWTH IN VOLUMES OF FOLLOWUP OFFICE VISITS PER ENROLLEE, PER CLAIMANT, AND PER CLAIMANT OF OFFICE MEDICAL CARE SERVICES, SELECTED STATES, 1983 - 1987.

	VOLUME PER ENROLLEE			GROWTH	
	1983	1985	1987	83/85	85/87
EIGHT STATES	NA	3.50	3.75	NA	7.2
FIVE STATES	2.76	2.99	3.30	8.3	10.3
METRO DC	NA	3.62	3.77	NA	4.1
DE	NA	3.12	3.15	NA	1.0
IN	2.58	2.83	3.12	9.8	10.5
ND	3.39	3.63	4.09	7.0	12.8
PA	NA	3.99	4.22	NA	5.7
SC	2.32	2.59	2.83	11.4	9.5
SD	2.56	2.81	3.33	9.6	18.4
WA	3.24	3.41	3.71	5.1	8.9

	VOLUME PER CLAIMANT			GROWTH	
	1983	1985	1987	83/85	85/87
EIGHT STATES	NA	4.25	4.32	NA	1.7
FIVE STATES	3.59	3.72	3.80	3.6	2.3
METRO DC	NA	3.91	3.99	NA	2.1
DE	NA	3.48	3.49	NA	0.4
IN	3.39	3.53	3.57	4.1	1.2
ND	3.37	3.57	3.80	6.1	6.3
PA	NA	4.84	4.93	NA	2.0
SC	3.38	3.48	3.50	2.8	0.6
SD	3.29	3.43	3.43	4.1	0.1
WA	4.07	4.21	4.40	3.3	4.6

	VOLUME PER OFFICE MEDICAL CLAIMANT			GROWTH	
	1983	1985	1987	83/85	85/87
EIGHT STATES	NA	4.97	5.00	NA	0.7
FIVE STATES	4.23	4.31	4.39	2.0	1.8
METRO DC	NA	4.66	4.75	NA	2.0
DE	NA	4.25	4.23	NA	-0.5
IN	4.18	4.24	4.25	1.4	0.4
ND	3.81	4.03	4.30	5.9	6.6
PA	NA	5.69	5.71	NA	0.3
SC	4.07	4.11	4.06	1.0	-1.2
SD	3.89	3.94	3.96	1.3	0.5
WA	4.53	4.66	4.89	2.8	4.9

As noted in the initial report, adjusting for changes in the eligible population only takes into account one of the potential sources of increase in use. It does not take into account any increases in the proportion of

enrollees who are receiving reimbursed benefits. In particular, there have been significant increases in both the number and the proportion of beneficiaries submitting claims for Part B reimbursements. Adjusting for the increase in claimants reveals that a significant share of the increases in office visit volume per enrollee is due to increases in the proportion of enrollees who become claimants. While in the five States between 1983 and 1985 visits per enrollee increased by 8.3 percent, visits per claimant increased by only 3.6 percent. In fact, in each State the increase in claimants exceeded the increase in beneficiaries.¹⁵ Further, the disparity was greater over the 1985/87 time period than it was over the 1983/85 time period. In four of the five States, the increase in visits per enrollee appeared to accelerate comparing 1985/87 to 1983/85. However, in only two of those States was there an acceleration with respect to visits per claimant.

A separate count of claimants of office visits was not computed, but a proxy exists in the counts of claimants of office medical care services. This measure suggests that claimants of office visits increased at a faster rate than the aggregate increase in claimants for all services. Using the proxy one can note from Table 8 that visits per enrollee increased by 7.2 percent from 1985 to 1987, but visits per claimant of any service increased 1.7 percent and visits per claimants with office visits increased only 0.7 percent. In fact, in the eight state aggregate those latter claimants

15 In fact, this is a national phenomenon. While total enrollees increase at approximately 2 percent per year, the increases in persons receiving benefits have increased at an average annual rate of 5.5 percent from 1975 to 1986. Persons receiving benefits as a percentage of total enrollees increased from 48.2 percent in 1975 to 68.8 percent in 1986. (Winston O. Edwards and Charles R. Fisher, "Physician charges and utilization trends," Health Care Financing Review, Fall 1989, vol 11, num 1.)

received 4.97 visits per year in 1985 and 5.00 visits per year in 1987, hardly a considerable difference.

There have been conjectures that the relative population of Medicare users of physician services has been stable at approximately 80 percent of the size of the population of Part B enrollees. From this perspective, the claimant phenomenon is a bill filing phenomenon rather than a change in physician and/or beneficiary service patterns. Finally, as a result of reliance on estimates of per enrollee utilization, utilization growth due to growth in claimants has been attributed by others to increases in volume and/or intensity.¹⁶ The data on claimants, however, suggest that in some states more than 80 percent of enrollees may be users of service. Further, while some of the increase in claimants may be due to out-of-state users, much of it is genuine.

Table 8 presents the data on claimants and enrollees for the eight jurisdictions for 1983, 1985, and 1987. It includes an adjusted estimate of the percentage of beneficiaries who were claimants. The basic adjustment involves inflating the July 1 HCFA enrollment statistic by 7 percent to estimate the number of persons ever enrolled during a year, because the claimant counts include persons who may not have been enrollees on July 1 of that year.

While the data on claimants excludes those with lab and/or venipuncture claims only, claimants as a percentage of adjusted enrollees has continued to increase over this time period. By 1987 it was eighty percent or more in six of the eight jurisdictions, and it is greater than 100 percent in North

16 This issue is further addressed later in the report in conjunction with the analyses of Table 20.

Dakota. While a substantial number of North Dakota claimants may come across the Mississippi River from Minnesota, there can be no doubt that a per enrollee measure of utilization in North Dakota would seriously understate the potential population of users.¹⁷

TABLE 8

CLAIMANTS^a [C], ENROLLEES^b [E], AND ADJUSTED CLAIMANT PROPORTION OF ENROLLEES^c [%], EIGHT JURISDICTIONS, SELECTED YEARS--1983/1987

	-----1983-----			-----1985-----			-----1987-----		
	C	E	%	C	E	%	C	E	%
IN	503359	662490	71	545028	680449	75	617990	706641	82
ND	89554	89091	94	92217	90914	95	100645	93490	101
SC	239084	348263	64	274390	368991	69	318984	394019	76
SD	77182	99106	73	82998	101233	77	100766	103842	91
WA	391939	492330	74	420421	519174	76	463436	549948	79
DE				65455	72960	87	71460	79166	88
DC				224402	242079	84	242631	256573	84
PA				1469226	1779380	77	1564984	1828563	80
5S	1301118	1691280	72	1415054	1760761	75	1601821	1847940	81
8S				3174137	3855180	77	3480896	4012242	81

^a TOTAL ANNUAL CLAIMANT COUNTS OF PERSONS WITH AT LEAST ONE NON-LAB PHYSICIAN SERVICE

^b ENROLLEE COUNTS AS OF JULY 1 [SOURCE: HCFA/BDMS]

^c RATIO OF CLAIMANT COUNTS TO ESTIMATED COUNT OF ENROLLEES EVER ELIGIBLE DURING THE YEAR EXPRESSED AS A PERCENT. COUNT OF ENROLLEES EVER ELIGIBLE DURING A YEAR IS ESTIMATED AS SEVEN PERCENT HIGHER THAN THE JULY 1 ENROLLMENT ESTIMATE. [SOURCES: SMI TRUSTEES REPORT AND WINSTON O. EDWARDS AND CHARLES R. FISHER, "PHYSICIAN CHARGES AND UTILIZATION TRENDS," HEALTH CARE FINANCING REVIEW, FALL 1989, VOL 11, NUM 1.)

The data on followup office visits suggest that increases in office visit volume did not occur primarily as a result of physicians providing

17 In the data from the 1987 BMAD beneficiary files there were 11,460 beneficiaries included who had one or more claims processed by North Dakota Blue Shield, the carrier for both North and South Dakota. Of this number, 3972 were recorded as North Dakota residents, 4323 were South Dakota residents, and 1571 were from Minnesota. All other states contributed the remaining 14 percent of the observations. (Edye Fisher, HCFA/BDMS, personal communication, 1989.)

significantly greater volumes of visits to their existing office patients. It suggests that the increases derived substantially from increases in the number of patients visiting physicians in their offices. Visit volume per office medical claimant increased on an annual basis by roughly one third of one percent from 1985 to 1987. Given the substantial increases in total approved charges in 1987 alone, any visit unbundling that may have occurred seems inconsequential. Increases in approved charges based on the estimated increase in volume in followup office visits would amount to just more than one quarter of one percent of the increase in total approved charges for all services between 1985 and 1987.

PROCEDURE INCREASE

It is argued by some observers that another alternative vehicle to increase physician revenues might be procedure increase, i.e., an increase in the incidence and/or number of services provided ancillary to an office visit.¹⁸ Such an increase might occur even if there were not easily discernible increases in the number of visits per person served. On the other hand, increases in patient demand for health care services might also give rise to increases in the services provided in conjunction with office visits. Given the success of the Participating Physician Initiative introduced in October 1984, and the accompanying increases in assignment and decreases in beneficiary unassigned liability nationally from 1985 to 1987, one might well

18 Still another alternative vehicle for revenue increases might be additional surgeries performed in conjunction with an initial surgery. A review of a very limited analysis of the feasibility of examining this possibility through claims data is included at the end of this section of the report.

expect to observe increases in beneficiary utilization of ancillary services with respect to office visits.

Neither the initial report nor the instant report empirically distinguish between these two or any other potential origins of procedure increase. However, following the approach of the initial report an examination of the extent of this phenomenon was conducted by identifying several somewhat arbitrary "windows" of time following an initial office visit for selected beneficiaries.

In order to accurately assess the services provided with respect to the date of service of the first office visit provided during a year, only claims for service with a single date of service could be used. As a result, the selected patients are only those who were not hospitalized and who did not have multiple dates of service for the same service on a single claim. There was no indication of bias in this selection process, although approximately 25 percent of non-hospitalized claimants for office visit services were eliminated from consideration from the 1983, 1985, and 1987 data sets.

The windows under consideration involved periods of 7, 15, and 30 days following the initial office visit. In particular, a diagnostic test or an xray performed or ordered on the day of the visit could logically be expected to be performed for the patient within those time frames. If more such services were being "unbundled" from the basic visit fee, one could expect to see an increased provision of services within each window when comparing the 1985 experience to that of 1987.

In the initial report, with the exception of Indiana, services per 1000 claimants exhibited declines in the seven and fifteen day windows, and showed a somewhat mixed pattern of small changes--both positive and negative--for the

thirty day window. Further analysis of the aggregate data indicate that the increases in services per claimant observed for the 30 day window were concentrated by place of service in the outpatient department and by type of service in surgery. This was consistent with the findings reported in that study of substantial increases in the use of outpatient department surgery over this time period.

TABLE 9

TWO YEAR PERCENT CHANGE IN THE NUMBER OF SERVICES PER 1000 PART B CLAIMANTS FOR NON-HOSPITALIZED PATIENTS WITHIN SEVEN, FIFTEEN, AND THIRTY DAYS FOLLOWING AN INITIAL OFFICE VISIT DURING A CALENDAR YEAR, SELECTED STATES, 1985/1987

<u>JURISDICTION</u>	<u>PERCENT CHANGE 1985/1987</u>		
	<u>7 DAYS</u>	<u>15 DAYS</u>	<u>30 DAYS</u>
8 STATES	8.9	11.3	13.7
DE	6.9	9.2	10.8
IN	13.1	15.8	18.2
PA	8.7	10.7	12.3
SC	-9.4	-4.3	0.5
SD	20.3	26.4	33.4
WA	17.4	19.6	22.8
ND	15.2	18.6	22.6
DC	3.7	4.2	5.6

EVIDENCE OF VOLUME INCREASES

Table 9 displays the changes in the number of services per 1000 Part B claimants for the eight state aggregate and for each of the eight States under consideration. In contrast to the earlier results, increases can be observed in all but one state and for each window length. Total services per office visit claimant for each state and for each window length are displayed in Figure 3. There are two tiers of four states each among the eight

jurisdictions. Metro DC, North and South Dakota, and Washington State have the highest utilization rates with respect to each window, with Delaware, Pennsylvania, Indiana, and South Carolina at distinctly lower levels. Somewhat ironically, the states with the highest levels also tended to exhibit the highest rates of growth.

Data on the levels of service, changes in those levels, and contributions to aggregate changes by type and place of service are displayed in Table 10. By type of service, the largest contributor to the increase in the number of services in each window was the category of minor surgery. This, however, is likely an artifact of changes in both regulations and coding that occurred from 1984-1986. In particular, the code for venipuncture for the collection of specimens overwhelms any other code in this category. Prior to July, 1984 physicians could only bill for this service if they collected a specimen but did not perform the resulting lab test. From July 1984 onward physicians were allowed to bill for this service even if they did perform the resulting test.

While this regulatory change would have increased the service counts, a coding change in the next year probably had an even greater effect. Prior to November 1985, a level 2 code [P9600] was used to record this service. [In the development of the initial data sets, this code was deleted because it designated a non-physician service. Hence the apparent substantial increase in venipunctures for specimen collection may be substantially overstated.]

TABLE 10

PROCEDURE INCREASE ANALYSIS: SERVICES AND ALLOWED CHARGES PER 1000 CLAIMANTS OF OFFICE VISITS IN 1987 BY SELECTED TYPES AND PLACES OF SERVICE, PERCENTAGE CHANGE WITH RESPECT TO 1985, AND SHARE OF THE TOTAL CHANGE FROM 1985 TO 1987, EIGHT STATES, NONHOSPITALIZED PATIENTS

TYPE/PLACE	WINDOW	1987 SERVICES	CHANGE %	% SHARE	1987 CHARGES	CHANGE %	% SHARE
ALL	7 DAYS	1283	8.9	100.0	31887	31.2	100.0
	15 DAYS	1602	11.3	100.0	45133	35.9	100.0
	30 DAYS	2100	13.7	100.0	63553	38.6	100.0
MEDICAL	7 DAYS	262	5.5	12.9	8495	22.6	20.7
	15 DAYS	405	7.8	18.0	12468	25.5	21.2
	30 DAYS	647	9.6	22.3	18903	27.3	22.9
MAJOR SURG	7 DAYS	17	16.8	2.3	4055	51.9	18.3
	15 DAYS	27	18.4	2.6	7611	52.4	22.0
	30 DAYS	42	20.1	2.7	12267	63.9	27.0
NON-MAJOR SURG	7 DAYS	129	233.6	86.3	2809	50.1	12.4
	15 DAYS	153	206.4	63.3	4217	53.8	12.4
	30 DAYS	189	187.8	48.7	6054	56.1	12.3
CONSULTS	7 DAYS	4	9.3	0.3	216	22.0	0.5
	15 DAYS	6	16.7	0.6	392	28.7	0.7
	30 DAYS	10	23.6	0.8	646	36.6	1.0
X RAYS	7 DAYS	156	3.6	5.2	6301	21.1	14.5
	15 DAYS	190	6.7	7.3	7972	26.6	14.0
	30 DAYS	234	9.8	8.2	9962	31.3	13.4
PATHOLOGY	7 DAYS	671	-4.5	-29.9	9198	29.1	27.3
	15 DAYS	758	-2.8	-13.2	11207	34.0	23.8
	30 DAYS	888	-0.9	-3.1	13739	37.8	21.3
ANESTHESIA	7 DAYS	11	117.1	5.7	329	87.8	2.0
	15 DAYS	22	108.0	6.9	636	83.3	2.4
	30 DAYS	35	100.7	6.8	1013	76.2	2.5
OTHER SERVICES IN SURG DRG'S	7 DAYS	0	82.4	0.0	1	250.6	0.0
	15 DAYS	0	86.1	0.0	1	462.6	0.0
	30 DAYS	0	98.2	0.0	1	332.7	0.0

TABLE 10 (CONTINUED)

PROCEDURE INCREASE ANALYSIS: SERVICES AND ALLOWED CHARGES PER 1000 CLAIMANTS OF OFFICE VISITS IN 1987 BY SELECTED TYPES AND PLACES OF SERVICE, PERCENTAGE CHANGE WITH RESPECT TO 1985, AND SHARE OF THE TOTAL CHANGE FROM 1985 TO 1987, EIGHT STATES, NONHOSPITALIZED PATIENTS

TYPE/PLACE	WINDOW	1987 SERVICES	CHANGE %	% SHARE	1987 CHARGES	CHANGE %	% SHARE
OFFICE	7 DAYS	905	4.7	38.7	21238	23.1	52.6
	15 DAYS	1129	6.9	44.8	28530	26.6	50.3
	30 DAYS	1499	9.4	50.6	39351	29.2	50.3
OPD	7 DAYS	102	21.4	17.2	6769	56.9	32.4
	15 DAYS	155	27.7	20.6	11817	59.2	36.8
	30 DAYS	220	32.6	21.3	18150	59.3	38.2
IND LAB	7 DAYS	268	19.4	41.5	3346	31.7	10.6
	15 DAYS	305	20.7	32.1	3845	33.4	8.1
	30 DAYS	360	22.1	25.7	4556	35.4	6.7
HOME	7 DAYS	1	-17.0	-0.2	37	1.4	0.0
	15 DAYS	2	-18.8	-0.3	65	-6.1	0.0
	30 DAYS	3	-19.3	-0.3	113	-4.8	0.0
SNF	7 DAYS	2	9.8	0.2	46	18.9	0.1
	15 DAYS	4	9.1	0.2	90	22.9	0.1
	30 DAYS	7	10.4	0.3	168	23.3	0.2

Outside of the minor surgery category, medical care exhibited the largest share of increases in utilization. This was followed by xrays and anesthesia services. Pathology services decreased within each of the windows. In the subsequent analyses, it will be noted that pathology services for nonhospitalized patients increased in the aggregate. If physicians are increasingly having their patients tested prior to office visits that might explain this particular decline.

By place of service, only office, OPDs, and independent labs make any significant contribution to service counts. These three places account for

the vast bulk of the changes from 1985 to 1987. Offices begin and end with the highest service counts in each of the windows although the percentage change in those counts was relatively small. The OPD service counts were the smallest of the three, but this cell experienced the most rapid growth.

In terms of changes in allowed charges within the windows, the venipuncture story is much reduced because those services are very inexpensive on a unit basis. Pathology, major surgery, and medical care, respectively, produced the greatest increases in allowed charges within the various windows. Xrays and minor surgery each accounted for 12-15 percent of the total allowed charge increase. Given the decline in the number of lab tests, the effective average allowed charge per test was rapidly increasing. This could be accounted for by an increase in the complexity mix of tests or through an increase in the number of personally performed tests that would have the effect of adding in additional professional component charges. Such a change might not be unexpected given the prohibition of marking up of tests in late 1984, and the mandatory assignment of tests imposed in January, 1987.

By place of service, more than half of the increase in allowed charges in the various windows occurred with respect to physicians' offices. OPD charges constituted nearly 40 percent. Independent labs, another major site of venipunctures was the remaining significant contributor to the increases.

In the preceding section, changes in office visit volume were conjectured to reflect changes in the number of claimants seeking care in physicians' offices. Because this analysis is based on volume per 1000 claimants of an initial office visit, the evidence of volume changes cannot be accounted for by changes in the number of claimants. (However, unless the additional claimants of office visit services are, in fact, marginal users,

the ultimate financial effects of the evident procedure increase may be much more significant. More claimants may each be receiving the same package of office visits, but that package is accompanied by a richer mix of ancillary services.)

Several hypotheses suggest themselves, although--because this study was not designed to empirically test these hypotheses--the specific determinants of the increases in ancillaries will remain a matter of conjecture. First, one might note that during 1985 and early 1986 physician allowed charges were frozen (and had not been increased since July, 1983). Some would argue that physicians increased demand for their own services to counteract the effects of the freeze.

In this regard, one might expect the 1983/85 and 1985/87 results to be comparable given the lack of fee increases from July 1984 through May 1986. Only the surgery category exhibited increases that were consistent in both time frames: 18.2-18.9 percent increases for all surgery from 1983/85 vs. 16.8-20.1 percent increases for major surgery from 1985/87. Medical care services, which were a major component of the 1985/87 increase, actually declined during 1983/85. Pathology services declined in both periods, although the 1983/85 decline may have been considerably affected by the prohibition on marking up of lab tests begun in 1984. In fact, for most types of service the 1985/87 increases in volume exceeded those of 1983/85. One might argue that the freeze induced a delayed reaction in physicians only because it was prolonged.

Alternatively, one might examine the data to identify other factors that differed between the 1983/85 and 1985/87 time periods. For example, the earlier period saw the initiation of the prospective payment system [PPS].

Because PPS had the effect of reducing hospital admissions, one might argue that the non-hospitalized population was sicker than it might otherwise have been, and hence one would observe increases over time in ancillary utilization in that population. Because PPS was not implemented in most hospitals until the fall of 1984--on a transition basis, these effects might not have become obvious until after 1985. In the initial report, however, we argued that the increase in OPD utilization (by both non-hospitalized and hospitalized patients) was too large to simply have been a PPS effect. While not impossible, the notion that a PPS effect would not have become evident until after 1985 is not plausible.

Another alternative would involve the effects of the initiation of the Medicare Participation Program in October 1984. Assignment rates increased significantly as a result of this program and beneficiary unassigned liabilities exhibited substantial declines. The effective price effects of increased assignment could be even more substantial because most Medigap insurance did not cover balance bills. Thus a change in assignment might mean a 100 percent reduction in beneficiary out-of-pocket liabilities on previously unassigned claims. Even at the lower ranges of estimates of patient elasticity of demand, major reductions in patient costs could be expected to result in increased utilization.

Here again, however, the data are not unequivocal. While the increase in medical care services utilization accelerated markedly during the 1985/87 period compared to 1983/85, the surgery increase may have moderated. Patients may have spent more money on lab tests, but fewer tests were purchased per initial office visit. One can conclude that there were increases in utilization. The specific cause or causes await further study.

THE FEASIBILITY OF EXAMINING MULTIPLE SURGERIES FROM CLAIMS DATA

In both the initial report and the current report analyses were conducted with respect to changes in the patterns of services observed in conjunction with a particular occasion of service: a patient's initial office visit for a year. A limited investigation was conducted to examine the feasibility of analyzing a different locus of service, an inpatient hospital surgery. The particular question in mind was whether one could identify patients who had received multiple inpatient surgeries on the same day or consecutive days.

The answer to that question was affirmative. One can identify the records of such patients. Further, a related piece of evidence from the disaggregated data analyses showed that the average number of inpatient major operative services per claimant exhibited (mainly slight: 1-5%) increases from 1985 to 1987 in seven of the eight States under study. Because the average number of inpatient major operative surgeries per claimant is roughly 1.5, while a substantial number of hospitalized patients will have only one surgery, perhaps as much as 30 percent of those patients will have two or more operations. This may make the question of possible multiple surgeries more interesting.

The next step in the feasibility analysis--whether multiple surgeries might be evidence of abusive billing practices--quickly went beyond the realm of economic and statistical analysis. Many of the multiple surgeries appeared to be left side, right side affairs such as cataract surgeries on both eyes. Some of the multiples were explicitly labeled multiples through the modifier

code 51 to be paid at reduced rates. One case, for example, involved both a cholecystectomy as the major procedure [47610] and a secondary procedure: anastomosis of extrahepatic ducts and gastrointestinal tract [47760]. These are related procedures, but whether they were both necessary is a clinical question not an economic one. The claims data are insufficient for answering that question. One other example involved an enterectomy, resection of small intestine, with anastomosis [44120] on the same day as a hernia repair [49505]. Those procedures are not so obviously related, but again, whether they were both necessary is a clinical question not an economic one. The claims data in and of themselves are simply not sufficient for answering that question.

In order to further explore these research questions it would be necessary to match the claims data with other records containing more clinical information to see which, if any, of the multiple surgeries not identified with the appropriate second procedure modifier were in fact justifiable as multiples. Once this clinical information were available the claims data could be used to make inferences whether the incidence of unbundling from surgical global fees was or was not increasing. At this point we stopped because the clinical effort was beyond the scope of our inquiry. It seems clear, however, that claims data analysis can point the way to medical records and/or other clinical information that may need to be questioned with respect to medical appropriateness of care.

CHANGES IN ALLOWED CHARGES

Total allowed charges for physician services in the eight states totaled \$2.4 billion in 1985 and \$3.2 billion in 1987, an increase of \$794 million. For the five state group, total allowed charges increased by \$326 million from \$878 million to \$1.2 billion. The comparable change in those five states from 1983 to 1985 was an increase of \$137 million based on a total of \$740 million in 1983.

The previous sections examined several specific phenomena that might be associated with increases in physician allowed charges. This section deals with a more aggregate analysis of changes in allowed charges for physician services under Part B of Medicare. This section primarily addresses the question of what factors account for the aggregate increases in outlays that in total came to 33 percent in the eight sample States from 1985 to 1987--37.2 percent in the original five State sample [compared to an 18.5 percent increase in those five states from 1983 to 1985]. In the course of the discussion of these analyses some specific contrasts will be made with the initial report results. A more complete contrast of the matrix of changes in approved charges will be presented in a later section of this report.

The basic framework of the analysis involves a partition of changes in total allowed charges into three subcomponents. These are changes in claimants¹⁹, changes in services per claimant, and changes in allowed charges

¹⁹ For the purpose of this study, a claimant is defined as a Medicare beneficiary who has received at least one service that was recorded in a particular carrier history file with a positive approved charge. Claimants may be further defined by type or place of service. The number of unique patient identifiers associated with a specific type and/or place of service define the counts of claimants reported in the study.

per service over the time period 1985-87. The analyses presented in this section focus primarily on changes with respect to specific type of service and place of service combinations.

The cells that were found to be associated with the largest increases in allowed charges were physician office medical care, inpatient hospital medical care, and major operative surgical services in hospital outpatient departments. In contrast to the results of the initial report there were no major cells exhibiting declines in approved charges. (A "major" cell is a place and type of service cell whose absolute change in total approved charges is equal or greater than .5 percent of the total change in approved charges across all cells.)

By place of service the largest contribution to growth came from physicians' offices, with somewhat smaller but roughly equivalent increases observed in both hospital inpatient and outpatient settings [17.0, 11.9, and 11.3 percent, respectively]. By contrast, in the initial report the inpatient hospital setting exhibited declines in approved charges, and the outpatient department setting was a greater contributor to growth than was the physician office setting. (In the five States from 1983 to 1985, the corresponding percentage changes were 27.2, -2.5, and 169.8, respectively.) By type of service the increase in medical care across all settings was roughly equal to one-third of total growth while it was one-fifth of total growth in 1983/85. On the other hand, the growth in major operative surgery contributed roughly one-fifth in 1985/87 compared to 38.8 percent in 1983/85. The 1985/87 growth in surgery as a whole was equal to 28 percent of growth across all types of service compared to 48.3 percent in 1983/85. The absolute growths in pathology services and diagnostic xray services during 1985/87 were equal to

13.7 and 11.0 percent, respectively, of the total increase in approved charges compared to 8.8 and 8.9 percent, respectively from the initial report. The proportion of the total increases for diagnostic xrays was significantly larger in the Pennsylvania States compared to the five State group from the initial report.

The major findings of the initial report showed that the major source of increase in approved charges occurred with respect to outpatient department surgery. Further, the magnitude of the OPD increases was such that only a small part of those increases could be attributed to substitution from the inpatient side. In short, the increases in outpatient surgery appeared to involve additional surgery, not merely a substitution of surgery from the inpatient side. The findings from the 1985/87 analysis from both the five State group and the complete eight State group reveal changes in the patterns of growth in approved charges. The 85/87 growth rates for surgery as a whole and anesthesia were roughly equivalent to those observed for 83/85. Growth rates accelerated, however, for medical care, consultations, pathology, and both diagnostic xrays and radiation therapy. These contrasts are shown in Table 11:

TABLE 11

GROWTH IN APPROVED CHARGES, 1983/85 AND 1985/87
BY TYPE OF SERVICE, FIVE STATE GROUP

	83/85	85/87
TOT	18.5	37.2
MED	10.1	35.4
MAJ. SURG	24.6	30.0
ALL SURGERY	26.0	32.4
CONS	15.7	39.9
DXRAY	18.2	32.1
PATH	18.3	47.5
RAD	35.0	49.6
ANES	26.2	24.0
ASSIST	9.2	15.0
	83/85	85/87
OFF	27.2	46.5
HOSP	-2.5	19.4
OPD	169.8	69.6
LAB	58.6	49.7

INTRODUCTION TO THE DISAGGREGATED ANALYSIS

This study was limited to an examination of Medicare Part B physician services only. Those factors that were examined included total allowed charges, total physician service claimants, and total physician services. In addition, three aggregate measures were examined: average annual services per claimant, average allowed charge per service, and average allowed charges per enrollee.

Total allowed charges across the eight sample States totaled \$2.4 billion in 1985 and \$3.2 billion in 1987, a growth over those two years of 33.0 percent. Unlike the period from 1983 to 1985, there were no substantial

decreases in allowed charges by place or type of service. In fact, while the initial report indicated that approved charges for inpatient medical care, surgery, pathology, and radiation therapy all declined between 1983 and 1985, only radiation therapy of all inpatient services continued to decline from 1985 to 1987. Total hospital increases in approved charges, however, were exceeded by those in physician offices, in particular those involving medical care services. The increase in approved charges for office medical care exceeded that of all other cells by place and type of service, and represented 17 percent of the total increase across all cells. Inpatient medical care and outpatient department major operative surgeries were numbers 2 and 3 in size, representing 11.9 and 11.3 percent, respectively, of the total increase. In contrast, the 1983/85 increase in approved charges for outpatient department major operative surgery represented 34.7 percent of the total increase over that time period.²⁰

USERS, CLAIMANTS, AND PERSONS SERVED

In the eight State sample a total of 3.17 million Medicare beneficiaries were recorded in the claims files as having used at least one service during 1985. By 1987 this figure had increased to 3.48 million, an increase of 9.7 percent. Such beneficiariaries will be referred to as "claimants," defined as a beneficiary who received a billed physician service that had a positive allowed charge and that was provided in one of the eight States during the

²⁰ In the initial report, the HCFA type of service categories were used. Thus there was a single surgery category rather than the major and non-major categories used in the 1985/87 analysis. The combined surgery category represented a total of 38.5 percent of the total increase in allowed charges reported from 1983 to 1985.

year. This nomenclature has been adopted to distinguish claimants from both "users" of service and "persons served." The set of users of service may be considered to include all beneficiaries who receive a covered physician service regardless of whether a bill is submitted on their behalf. The set of claimants is thus a subset of the set of users. "Persons served" is a Medicare term of art that has appeared in a wide variety of statistical publications. The set of persons served includes only those beneficiaries who have had both a claim filed on their behalf and a payment made on their behalf, i.e., they have exceeded the Part B deductible. Nationally, the set of persons served is thus a subset of the set of claimants.²¹

In counting claimants by place or type of service in each of the two years, one often observes that the number of claimants in 1987 exceeds the number observed in 1985. These increases from one year to another will be referred to as "additional claimants." One should be cautious when interpreting variations in the growth of additional claimants for various place and type of service combinations. The least arbitrary assumption in this regard would be an expectation that the number of claimants for any type and place of service combination would grow at the same rate as that of the enrollee population. There would be an additional expectation of some small normal variation about this rate of growth. While some might expect that some services, such as surgery, would have an expectation of higher growth because relatively few beneficiaries are claimants for such services in any year, we are aware of no data to support this contention. Further, outside of the inpatient, home, and nursing home places of service, there are virtually no

²¹ These definitions and cautions with respect to the use and interpretations of this type of statistics were presented in the initial report.

major place and type of service cells with evidence of a decline in claimants. Despite these concerns differences in rates of overall use for different services are important to track. Comparisons in the growth of claimants across all type and place of service combinations can give indications of whether there are shifts in use among relatively more expensive and relatively less expensive services and which of those categories of service are growing more rapidly.

A total of 67.8 million physician services was provided in 1985 compared to a total of 81.8 million in 1987, an increase of 20.7 percent. Roughly half of the increase in services was due to an increase in services provided in physicians' offices. By place of service, inpatient and OPD increases contributed roughly one sixth each to the total increase in services; independent labs contributed roughly one eighth. Increases in medical care services were equal to 28.2 percent of the total increase. Increases in non-major surgery, diagnostic xrays, and diagnostic laboratory each contributed between 15 to 16 percent of the total. The only consistent declines in the number of services were registered for surgical assists across virtually all places of service and for care rendered in the patient's home across virtually all types of service. In the eight sample States there were also some minor declines in nursing homes and independent labs as places of service.²²

In the initial report it was noted that inpatient medical care and pathology services declined from 1983 to 1985. The reduction in those services was hypothesized to reflect the impact of the introduction of the

22 Independent lab volume, particularly in 1987, will be understated in these analyses because of the editing out of beneficiaries whose only physician services involved diagnostic laboratory only, or whose only non-lab service involved a routine venipuncture in an independent lab.

prospective payment system for reimbursing hospitals. Also, during this period, HCFA changed the basis for physician billing for the professional component of inpatient pathological services to allow only anatomic pathology or surgical pathology procedures to be billed to Part B of Medicare. In contrast, both of these cells exhibited moderate increases from 1985 to 1987. This appears to confirm the conjecture from the initial report that the 1983/85 changes in service volume due to the introduction of PPS and the changeover in pathology billing would have been exhausted at that time because they were one time events.

With respect to the substantial increases of office medical care services, it is unlikely that these were direct effects of PPS. There were increases in office medical care services for both hospitalized and non-hospitalized beneficiaries. Inpatient medical care services were also increasing from 1985 to 1987 so, if anything, the office medical care services would have to be complements to inpatient care rather than substitutes. To infer these data as evidence of PPS effects one might conjecture the following effect: claimants no longer hospitalized because of PPS are sicker than the average non-hospitalized beneficiary but not as sick as those who do meet (the implicit) PPS criteria for hospitalization. Moving that group out of the hospital raises the average number of office medical care services of both the hospitalized and non-hospitalized groups. Although such an effect is consistent with the data on services per claimant, it can not explain the aggregate increase in office medical care services.

A PRELIMINARY DISAGGREGATION OF INCREASES IN COSTS

A preliminary examination of the components of increases in costs can begin with the following equations:

$$\text{Total physician charges} = (\text{number of claimants}^{23}) * (\text{quantity of services used per claimant}) * (\text{average charges paid per service})$$

$$\begin{aligned} \text{\%Change in total physician charges} = & (\text{\%change in number of claimants}) + (\text{\%change in quantity of services used per claimant}) + (\text{\%change in average charges paid per service}) + (\text{interaction term})^{24} \end{aligned}$$

The percentage change in the total can initially be assessed by examining the sum of the percentage changes in each of these four components plus their interaction term. With few exceptions some form of this decomposition has been utilized in all of the handful of time-series studies of changes in physician expenditures. (For a more complete discussion of the

23 A complete analysis would replace the claimant factor with two factors as follows: (number of claimants) = (number of enrollees) * (claimants per enrollee). Similarly, the (%change in number of claimants) = (%change in number of enrollees) + (%change in claimants per enrollee). Because the data used for the analyses are carrier based, the "true" count of enrollees is unavailable. In Table 20, we estimate the percent change in enrollees for any of the selected carriers as the estimated percent change in resident enrollees in the jurisdiction in question.

24 This mathematical interaction includes both the cross-products of changes among all of the included factors plus changes within each factor not explicitly considered in the spending equation. For example, those changes would include changes in the number and types of services available and changes in data recording.

assumptions and potential hazards associated with this approach, the reader is directed to the initial report and its appendices.)

A DIGRESSION ON THE DISTRIBUTIONS OF ALLOWED CHARGES BY INDIVIDUAL CLAIMANTS

In most analyses each of these growth factors is considered as independent of the others in theory, even though they may, in fact, be somewhat interdependent. In particular, it is conceivable that persons new to the Part B program in any year use fewer or less expensive services than those with previous experience in that program. To the extent that this occurs, one might misattribute some of the increases in allowed charges among the factors of disaggregation.

While this point is a theoretically valid one, completely assessing its empirical significance would have required an analysis beyond the scope of this study. For the initial report a preliminary analysis of this issue was conducted using one of the five States from the sample. This analysis suggested that although there might have been some interdependence among the factors being considered, these effects were relatively minor. Given the expected differences between patients with claimant experience in both 1983 and 1985 and those patients with 1985 claimant experience only,²⁵ there were relatively small differences between those cohorts. Further, it was clearly not the case that all "new" claimants were marginal claimants.

In lieu of repeating this analysis using the 1985 and 1987 data for one or more States, a direct examination of the distribution of allowed charges

²⁵ Those patients with the two years of claimant experience could be expected to have up to 12 months of Medicare eligibility during 1985, while those with only one year of claimant experience may average 6 or fewer months of eligibility for that year.

was initiated. In particular, some observers have suggested that the increase in claimants was due to either (1) an increase in the number of patients whose total allowed charges relatively barely exceeded the \$75 deductible, (2) an increase in the number of patients recorded as claimants even though they did not exceed the deductible, or (3) an increase in the number of beneficiaries meeting the deductible through their incurring of OPD facility charges, but not necessarily charges for physician services. The second effect might have occurred as a byproduct of the increase in assignment rates relieving beneficiaries of the need to file their own, otherwise unassigned claims. If any or all of these hypotheses were correct, one should be able to observe an increase in the relative proportion of claimants at the lower end of the distribution of annual approved charges.

An examination of the distribution of annual allowed charges suggests that there has been little or no increase in the number of beneficiaries just meeting the deductible.²⁶ In fact, in spite of an increase of 4.35 percent in the number of enrollees resident in the eight jurisdictions and an increase of 9.7 percent in the number of claimants from 1985 to 1987, there were cumulatively fewer claimants in 1987 with \$300 or less in allowed charges than there were in 1985. As shown in Figure 4.1, the lower ends of the individual charge class frequency distributions for the two years crossed somewhere between \$175 and \$200 per year. With respect to beneficiaries with claims in carrier history files but who did not meet the deductible, there were fewer claimants with positive allowed charges not meeting the Part B deductible in 1987 than there were in 1985.

²⁶ Claimants assessed according to total allowed charges for the calendar year and grouped by \$25 allowed charge intervals as follows: 0-\$25, \$25-50, \$50-75, \$75-100, and so on through \$6550-6575.

In fact, while more than 50 percent of claimants incurred less than \$300 in allowed charges in both years, the number of claimants in charge categories less than approximately \$500 annually grew at much lower rates than those with more than \$2500 annually. In Figure 4.2 one can note that charge classes less than \$450 grew at lower rates than the average growth rate for all claimants across the eight jurisdictions. Those cohorts of claimants with \$4000 or more in total allowed charges grew at rates from two to more than five times greater than the average.

Curiously, the relative distribution of allowed charges and claimants has been virtually unchanged in each year from 1984 to 1987. In Figure 4.3 the Lorenz curves with respect to the distribution of allowed charges across all claimants are displayed for each of those four years. The four curves coincide at nearly every point. Even at a much larger scale than is available on an 8 and 1/2 by 11 inch page, those curves would be virtually indistinguishable. This is true for both the eight jurisdictions as a whole and for most of the individual States.

Table 12 presents the Gini coefficients for each of the States and for the aggregate from 1983 or 1984 through 1987. The Gini coefficient is a measure of the skewedness of the distribution whose value can range from 0.0 (for a perfectly uniform distribution) to 1.0 (for a distribution split between two extremes). The Gini coefficient for the eight jurisdiction aggregate exhibits a value of .67 in each year. Only two of the individual States exhibit a change in the value of the Gini coefficient of more than .01 over the four years.²⁷

²⁷ The change in the Delaware value is most likely a function of the increase in venipuncture claims billed through that State beginning in 1986.

TABLE 12

GINI COEFFICIENTS WITH RESPECT TO ALLOWED CHARGES AND CLAIMANTS FOR THE EIGHT JURISDICTION AGGREGATE [8S] AND BY STATE, 1983 THROUGH 1987

	8S	ND	SD	SC	IN	WA	PA	DC	DE
1983		.67	.68	.68	.68	.67			
1984	.67	.68	.68	.68	.69	.68	.67	.68	.67
1985	.67	.68	.69	.69	.69	.67	.67	.68	.67
1986	.67	.68	.69	.69	.69	.66	.66	.68	.70
1987	.67	.67	.69	.69	.69	.65	.66	.67	.72

It is theoretically possible that both all "new" claimants are relatively marginal claimants and all "old" claimants experience dramatic increases in their total allowed charges that exactly compensate every year for the increase in the number of new claimants at the lower end of the spectrum of allowed charges. A more plausible theory, however, would have the population of "new" claimants drawn from the same universe as that of all other claimants, hence the near identity of their distributions of allowed charges.

However, to assess the new/marginal versus old/increasing hypothesis a specific data demonstration was conducted. Using the 4.4 percent increase in allowed charges noted by the Medicare Part B Actuaries, and the 4.35 percent increase in enrollment in the eight jurisdictions, we "aged" the 1985 distribution to estimate the distribution that might be expected in 1987. This expected distribution was then compared to that that was actually observed.

These distributions are portrayed in Figure 4.4 for claimants with allowed charges less than or equal to \$500. Again, the actual 1987

distribution for this range is less than that that might have been expected given both inflation and the increase in enrollment. In Table 13, below, selected points from the whole of these distributions are exhibited.

TABLE 13

CUMULATIVE DISTRIBUTIONS OF CLAIMANTS BY ALLOWED CHARGES, EIGHT JURISDICTIONS, 1987: ACTUAL AND EXPECTED BASED ON AUTHORIZED INCREASES IN ALLOWED CHARGES PLUS ENROLLMENT GROWTH. [SEE FIGURE 4.4]

\$	EXPECTED COUNT	% OF TOTAL	ACTUAL COUNT	% OF TOTAL	% DIFFERENCE EXPECTED-ACTUAL
100	903782	27	870397	24	-4
200	1497669	45	1439950	40	-4
300	1877372	56	1829755	51	-3
400	2125582	63	2100907	59	-1
500	2298531	69	2296785	64	-0
600	2426434	72	2445338	68	1
700	2524724	75	2562557	72	1
800	2603331	78	2656715	74	2
900	2667473	80	2734664	77	3
1000	2720623	81	2799735	78	3
2000	3027324	90	3163415	89	4
3000	3183677	95	3350789	94	5
4000	3255837	97	3441886	96	6
5000	3292493	98	3491817	98	6
6000	3311721	99	3519150	98	6

If anything, if there were more marginal claimants during 1987 one would have augmented the expected distribution at the low end of the scale of allowed charges. In fact, again, the actual 1987 cumulative distribution is up to 4 percent lower than the expected distribution even without additional correction for the postulated increase in marginal claimants. The distribution seems to have twisted, with reductions from the low end and increases at the high end. This appears to confirm that the claimant growth

was not solely a function of additional beneficiaries just meeting the deductible.²⁸

A byproduct of the stability of the distribution of charges was a brief examination of the potential impacts of the 1988 legislation mandating limits to the coinsurance liability under Part B. This legislation has since been repealed. The results of this examination are presented in the Appendix.

28 For completeness, both beneficiary and claimant totals are reported where appropriate.

REVIEWING CHANGES IN ALLOWED CHARGES FOR PHYSICIAN SERVICES

From 1985 to 1987 in the eight States studied, total allowed charges for *physician services* increased by approximately \$794 million, or 33.0 percent. (The increase in the five State sample was 37.2 percent in contrast to the 18.7 percent increase observed in those States from 1983 to 1985). Each of the eight States exhibited a comparable rate of change as is shown in Table 14. Over roughly the same time period,²⁹ total reimbursement amounts for all physician and non-physician services covered under Part B annually increased by 37.3 percent across all fifty States.

TABLE 14

1985/1987 INCREASES IN AGGREGATE ALLOWED CHARGES FOR PHYSICIAN SERVICES

EIGHT STATES (8-S)	33.0	NORTH DAKOTA (ND)	27.7
FIVE STATES (5-S)	37.2	PENNSYLVANIA (PA)	31.3
METRO DC (DC)	26.9	SOUTH CAROLINA (SC)	40.1
DELAWARE (DE)	30.0	SOUTH DAKOTA (SD)	36.2
INDIANA (IN)	37.0	WASHINGTON (WA)	38.0

The first analysis performed was to examine the absolute increases by cell to identify those place and type of service combinations that, in fact, were contributing the most to the changes in allowed charges.³⁰ The pattern is fairly consistent across the States. The increase in medical care allowed charges was approximately one third of the value of the increase in all allowed charges in the aggregate. In fact, it was approximately 33 percent in each of the States. Major operative surgery was responsible for 21.4 percent

29 Fiscal year 1985 to fiscal year 1987.

30 These include cells exhibiting increases or decreases in charges.

of all increases across the States, diagnostic laboratory and diagnostic xrays accounted for 13.7 and 11.0 percent, respectively.

With respect to place of service there is some more disparity among the States in the study. What is consistent is that the physician office site was number one in terms of growth. The inpatient hospital and OPD sites were either number two or three as growth centers, with inpatient more important in both the aggregate and for half of the States. In contrast to the initial report there were few major cells exhibiting decreases and no major cells whose absolute declines were equal to or greater than 1.5 percent of the total change in allowed charges.

Since medical care and major operative surgery consistently displayed the largest proportions of growth by type of service, and since office, hospital, and OPD were the largest among the sites, Table 15 was prepared to display these cross-disaggregations.

TABLE 15

DISTRIBUTION OF PERCENTAGE GROWTH IN TOTAL ALLOWED CHARGES, MEDICAL AND MAJOR OPERATIVE SURGICAL SERVICES BY PLACE OF SERVICE GROWTH RELATIVE TO TOTAL GROWTH, SELECTED PLACES OF SERVICE, EIGHT STATE AGGREGATE AND INDIVIDUAL STATES, 1985-87.

	<u>MEDICAL CARE</u>		<u>MAJOR OP SURG</u>	
	<u>OFF</u>	<u>HOSP</u>	<u>HOSP</u>	<u>OPD</u>
8-S	17.0%	11.9%	6.9%	11.3%
5-S	16.9	9.9	7.4	13.6
DC	17.7	11.2	5.2	12.4
DE	15.8	15.7	8.7	11.8
IN	16.3	12.1	9.0	10.4
ND	19.5	5.6	7.3	13.5
PA	17.0	13.7	6.8	9.1
SC	17.4	10.1	5.5	15.2
SD	17.7	5.0	1.2	11.0
WA	17.0	8.7	7.5	16.8

Again, there is a general consistency, although with the greater disaggregation, more differences can be noted among the States. The single largest component of changes in allowed charges relates to medical care in the office setting. This was the largest component in each of the States. With respect to inpatient services one notes that with one exception allowed charges for medical care increased at a faster rate than that of major operative surgery. Also worth noting is the relative magnitude of the changes in surgery in inpatient settings and outpatient settings. In the aggregate, the growth in outpatient surgery charges was nearly double the growth in total charges for inpatient surgery.

In the initial report there were aggregate declines in allowed charges for all surgical services in the inpatient setting. Further, the increase in allowed charges for OPD surgery was 18 times greater than the decrease for inpatient charges. The increase in the number of OPD surgeries was 12 times greater than the decrease in inpatient surgeries. These increases in OPD services were sufficiently large that they could not be judged to merely represent substitutions in place of service occasioned by the introduction of PPS. Although inpatient surgery appears to have reversed its declines, OPD surgery continues to grow at a faster rate. In fact, in the eight sample States from 1985 to 1987 OPD major operative surgeries went from 13.2 percent of the total to 16.9 percent. (In the five original States, OPD major operative surgeries represented 6.3, 12.6, and 17.1 percent of all major operative surgeries in 1983, 1985 and 1987, respectively.) As the number of

OPD surgeries increases, only the apparent percentage rate of growth has declined.³¹

In the initial report a PPS impact could be seen in the declines in inpatient medical care. Average length of stay for all Medicare patients declined by nearly 11 percent from 1983 to 1985,³² while among the five States, the decline in average length of stay ranged from 8 percent to 26 percent.³³ Over the 1985/87 period lengths of stay have stabilized or increased. The resulting impact on the number of hospital visits plus increases in non-visit medical care services provided to inpatients should account for the absolute increases in allowed charges in that cell.

PERCENTAGE CHANGES IN ALLOWED CHARGES

Although there was considerable variation in changes in allowed charges by place of service, within States there is more consistency across types of service.³⁴ This can be seen in Table 16. In the aggregate, nearly every major type of service increased near or in excess of double digit rates.

31 As the increase in OPD surgery charges moves from the numerator in one time period to the denominator of the next time period, the computed percentage rate of growth declined even though the absolute increase in charges was greater in the 1985/87 time period than it was during 1983/85.

32 Prospective Payment Assessment Commission, Technical Appendixes to the Report and Recommendations to the Secretary, U.S. Department of Health and Human Services, April 1, 1986. Table A-5.

33 Data from HCFA/BDMS.

34 There are several factors that may influence the changes in average allowed charges per service, not all of which can be disaggregated in all cases. These include the authorized increases in price due to fee screen updates. There may be some upcoding, including apparent upcoding as the composition of the stock of physicians changes. There may also be a change in the procedure mix for any place and/or type of service combination. In particular, any shift to a more expensive procedure mix would be reflected in increases in the average allowed charge per service.

TABLE 16

PERCENTAGE GROWTH IN TOTAL ALLOWED CHARGES, BY TYPE OF SERVICE FOR
SELECTED TYPES OF SERVICE, EIGHT STATE AGGREGATE AND INDIVIDUAL
STATES, 1985-87.

	8-S	DC	DE	IN	ND	PA	SC	SD	WA
TOTAL	33.0%	26.9%	30.0%	37.0%	27.7%	31.3%	40.1%	36.2%	38.0%
MED	28.8	22.4	27.9	35.4	26.9	26.0	38.1	35.2	35.6
MOS ^a	26.3	23.0	27.8	27.8	23.8	23.5	30.9	27.5	34.0
NMOS ^b	34.2	32.6	20.4	45.7	41.2	29.1	47.4	57.7	39.9
CONS	24.2	23.9	20.3	51.5	21.5	18.8	24.7	39.8	38.8
DXRAY	44.4	42.3	37.0	26.5	18.1	55.5	46.7	24.1	36.3
RAD	57.9	40.1	-8.0	95.0	32.5	70.8	20.0	41.6	27.4
PATH	49.5	40.0	46.3	47.2	30.2	53.1	51.9	47.3	50.4
ANES	26.2	18.9	36.9	22.9	18.9	29.1	34.9	24.1	22.4

^a Major operative surgery.

^b Surgery not involving major operations.

DISAGGREGATING CHANGES IN TOTAL ALLOWED CHARGES

As was indicated earlier, one can disaggregate the changes in total allowed charges into three subcomponents: changes in claimants, changes in services per claimant, and changes in allowed charges per service. This section will focus on this disaggregation. In fact, Table 17 has been prepared to display these statistics across all types and places of service for the eight State aggregate and each of the individual States. In addition, the estimated percentage growth in services per enrollee is presented as a contrast to the estimates of growth in services per claimant. Finally, the percent change in claimants has been disaggregated into the separate estimates of percent change in enrollment and percent changes in claimants per enrollee.

TABLE 17

PERCENTAGE GROWTHS IN TOTAL ALLOWED CHARGES, ALLOWED CHARGES PER SERVICE, CLAIMANTS [TOTAL AND DISAGGREGATED], AND SERVICES PER CLAIMANT--AND PER BENEFICIARY, ACROSS ALL PLACES AND TYPES OF SERVICE, EIGHT STATE [8-S] AGGREGATE, FIVE STATE [5-S] AGGREGATE, AND INDIVIDUAL STATES, 1985-87.

	ALLOWED CHARGES	ALLOWED CHARGE PER SERVICE	CLAIMANTS	SERVICES PER CLAIMANT	DIFFERENCE*	SERVICES PER BENEFICIARY	CLAIMANTS DISAGGREGATED: # ENROLLEES	CLAIMANTS PER ENROLLEE
8-S	33.0%	10.2%	9.7%	10.1%	3.0%	16.0	4.3	5.3
5-S	37.2	0.9%	13.2%	20.1%	3.0%	29.6	5.0	7.8
DC	26.9	13.9	8.1	3.0	1.9	5.1	0.2	7.8
DE	30.0	15.4	9.2	3.2	2.2	3.8	8.5	0.6
IN	37.0	-5.2	13.4	27.4	1.4	39.3	3.9	9.1
ND	27.7	2.4	9.1	14.3	1.9	21.4	2.8	6.1
PA	31.3	17.8	6.5	4.6	2.4	8.5	2.8	3.5
SC	40.1	9.1	16.3	10.5	4.2	20.3	6.8	8.8
SD	36.2	1.8	21.4	10.2	2.8	30.4	2.6	18.3
WA	38.0	4.4	10.2	19.9	3.5	24.8	5.9	4.0

* Difference between the percentage change in allowed charges and the sum of the percentage changes in the initial three growth factors listed above.

* Percent change in claimants is disaggregated into estimates of percent change in enrollment and percent changes in claimants per enrollee.

Table 17 may be notable first for its consistency of signs. With one exception, all of the subcomponents increased in all States. While services per claimant declined in each of the five States between 1983 and 1985, there were increases in all States from 1985 to 1987. However, while the increases in allowed charges occupy a somewhat narrow range from 26.9 to 40.1 percent, there is considerable diversity in the subcomponents among the States. In particular, the Pennsylvania Blue Shield States appear to differ from the original five State group. Claimant growth is somewhat lower in the three PBS jurisdictions, services per claimant is much more stable, but the growth in allowed charges per service is much higher compared to the other five States.

Increases in estimated claimants per enrollee for metro DC, however, are comparable to those of the original five State group.

The increase in claimants should be noted. Total enrollment in the eight States increased by 4.3 percent from 1985 to 1987. Claimants, however, increased by 9.7 percent. This implies that claimants per enrollee (or per beneficiary) was increasing by 5.3 percent. This finding is basically consistent with that of the initial report. For the five original States, claimants per enrollee increased by 4.6 percent from 1983 to 1985. In those States the comparable increase for 1985/87 was 7.8 percent. If, on the one hand, the eight State estimate may suggest that claimant growth is not as substantial as previously estimated, on the other hand the data from the original five States may portend an acceleration in claimant growth.³⁵

The contrast between conclusions based on growth in volume per enrollee and volume per claimant can be seen explicitly in Table 17. Growth in service volume is expressed on both a per enrollee and a per claimant basis. The services per enrollee statistic grew nearly 60 percent faster than the services per claimant statistic, with the excess ranging from 20 percent in Delaware to nearly 200 percent in South Dakota. The average excess across the eight individual States was 73 percent. For this reason, a disaggregated analysis of growth in allowed charges based on enrollees rather than claimants can be interpreted to attribute a larger proportion of growth to increases in individual volume and/or intensity than we believe would be appropriate.

One should note that while the claimant growth numbers are derived from the patient history data files, the enrollment numbers are based on HCFA's

35 If those States' estimates from 1983/85 were merely above average for that time period, regression to the mean might have been expected to bring reductions for the 1985/87 time period.

July 1 State specific enrollment estimates. Since the carriers do process claims from all beneficiaries who receive services within their jurisdictions regardless of their state of residence, there are no official estimates of the number of potential enrollees that may use the services of physicians in a particular state. The state specific estimates of enrollment growth are an approximation of expected growth in the eligible population being served by the various carriers.

With this caveat in mind, the estimates of growth in claimants per enrollee ranged from a low of 0.6 percent in Delaware to a high of 18.3 percent in South Dakota. From the data in Table 8 one can recall that claimants in South Dakota in 1985 were 77 percent of estimated enrollment, a statistic that grew to 91 percent in 1987. In the initial report it was noted that claimant growth in South Dakota substantially exceeded that of the other four original States. While it was speculated that a laboratory with a substantial volume of out-of-state work might have been evolving in that state, the elimination of data from beneficiaries with lab claims only should have reduced this source of potential bias. The reasons for the substantial claimant growth in South Dakota remain unknown.

There were 3.17 million persons who received any reimbursed Part B physician service in the eight States in 1983. By 1987 that figure had risen to 3.48 million persons, an increase of 307 thousand claimants³⁶. It is difficult to identify that specific individual service that might have triggered this additional use since a person might use several different types of service in several different places of service over the course of a year.

³⁶ Again, the total number of claimants of any service is estimated by counting the number of unique patients recorded as receiving one or more of that specific service.

Similarly, a previous claimant with respect to a particular service in one year might be an additional claimant in a second year with respect to a service not previously used. Hence one cannot add increases in claimants by type or place of service either to yield a total increase or to identify proportional sources of increase by place or type of service.

Separate statistics were computed, however, for both hospitalized claimants and those without a hospitalization during the year. The bulk of the claimant increase occurred with respect to claimants who were not hospitalized during a year. There were nearly 320 thousand additional nonhospitalized claimants in 1987 compared to 1985. In fact, hospitalized claimants declined by 1.3 percent from 1985 to 1987 while all other claimants increased by 14.9 percent.

The largest increases in claimants by place of service occurred with respect to physician offices and outpatient departments. By type of service, the major increase involved recipients of non-major surgery, particularly those receiving such services in physicians' offices. In 1985 roughly one fifth of all claimants for physician office services received non-major surgery in that setting. By 1987, the proportion was approximately one third. Unfortunately for these analyses, the bulk of these increases were due to the change in the coding for venipunctures. In fact, while there was an 88.2 percent increase in claimants of those services, services per claimant fell by 7.4 percent and the average allowed charge per service was reduced by 27.1 percent. The relatively inexpensive but numerous and relabeled venipunctures cloud the issue of increases in claimants and services in this cell.

In declining size order the next major types of service were medical care, diagnostic xrays, and diagnostic laboratory services. Table 18 presents

some of these increases in percentage terms. The greatest percentage growths in claimants are exhibited with respect to non-major surgery.

TABLE 18

PERCENTAGE INCREASE IN CLAIMANTS BY SELECTED TYPES OF SERVICE
[TOS] AND PLACES OF SERVICE, EIGHT STATE AGGREGATE, 1985/1987

TOS	PLACE OF SERVICE				
	OFF	HOSP	OPD	LAB	ALL
MED	10.8%	1.1%	23.1	-9.1	9.5%
MOS	14.4	-1.9	48.0	4.7	12.9
NMOS	88.2*	0.5	40.9*	NA	72.6*
DXRAY	15.4	4.4	25.5	76.6	11.0
PATH	-1.0	5.2	37.0	15.7	8.4
TOT	10.9	-1.3	20.7	15.9	9.7

* Increase believed to be due primarily to change in coding for routine venipunctures

COMPARING THE DISAGGREGATED RESULTS: 1983/85 VS. 1985/87, OR

DIFFERENT TIMES, DIFFERENT STORIES

One might easily be misled on the basis of a simple comparison of one 1983/85 statistic from the initial report with what appears to be the comparable statistic from the eight States from 1985/87. There are, in fact, two major differences between the two sets of analyses. First, the eight State group includes three States not included in the initial report. To the extent that the PBS group of States is different from the original five State group--and there are some differences--such comparisons are invalid. A second reason for caution is the difference between the two reports in terms of definitions of types of service and the exclusion of claimants with lab claims and/or venipuncture claims only. A reasoned approach to comparing the results of both reports involves both of two steps: a comparison of the 1983/85 and

1985/87 results for the five State group; and a comparison of the 1985/87 five State results with the 1985/87 eight State results.

Table 19 (on the next several pages) is a complicated, multi-part matrix of data that allows the comparison of the results from the two time periods. The 1983/85 results reported in this table differ in some respects from those of the initial report because the types of service definitions and claimant exclusion rules have been made consistent with the 1985/87 data files. These changes do not change the tenor of the results from the original report. For the most part, specific estimates change by only small amounts. Estimates of the 1983/85 change in total allowed charges, for example, showed an increase of 18.5 percent using the refined data base, rather than the 18.7 percent reported in the initial report. With the refined data major surgery and non-major surgery, respectively, represent 34.7 and 4.1 percent of the total change in allowed charges, whereas in the initial report all surgery amounted to 38.6 percent of the total increase. As might be conjectured with the elimination of claimants whose only services were lab tests, estimated claimant growth is reduced from 10.9 percent to 8.8 percent. Claimants of office medical care services, however, increased by 10.5 percent in both sets of data. (For the sake of parsimony, there are a few other minor design features to be noted in Table 19. The places of service, Home and Nursing Home, are not presented. They represented .4 percent and 1.2 percent, respectively of total allowed charges in the eight States in 1987. By types of service, Assistants at Surgery and non-surgical services that can lead to a surgical DRG classification, have also been omitted. They represented 1.1 percent and .1 percent, respectively of total allowed charges in the eight States in 1987. Finally, cells that represented less than 0.05 percent of the

change in allowed charges for the relevant comparison years have also been omitted. None of the four omitted places/types of service mentioned above contributed as much as 0.05 percent to the change in allowed charges in the eight States.)

TABLE 19

MATRIX OF CHANGES IN ALLOWED CHARGES, CLAIMANTS, SERVICES PER CLAIMANT, AND ALLOWED CHARGE PER SERVICE, EIGHT STATE GROUP [1985/1987], AND FIVE STATE GROUP FOR BOTH 1985/1987 AND 1983/1985, ALL PATIENTS, FOR SELECTED TYPES AND PLACES OF SERVICE

TABLE 19-A PERCENTAGE DISTRIBUTION OF TOTAL ALLOWED CHARGES FOR PHYSICIAN SERVICES BY SELECTED PLACES AND TYPES OF SERVICE

EIGHT STATES [85:87]						FIVE STATES [85:87]						FIVE STATES [83:85]					
1985	ALL	OFFICE	HOSP	OPD	LAB	ALL	OFFICE	HOSP	OPD	LAB	1983	ALL	OFFICE	HOSP	OPD	LAB	
TOT	100.0	29.2	52.1	13.4	2.4	100.0	29.8	51.4	14.0	2.2	TOT	100.0	27.8	62.5	6.1	1.7	
MED	37.9	16.7	17.2	1.9		34.3	16.5	14.5	1.7		MED	36.9	15.6	18.4	1.2		
MOS	26.9	2.8	17.8	5.9		30.7	2.6	20.8	6.7		MOS	29.2	1.9	25.7	1.5		
NMOS	6.6	2.2	3.0	1.3		5.9	1.9	2.7	1.2		NMOS	5.3	1.5	3.0	0.7		
CONS	3.9	0.6	3.2	0.1		2.5	0.7	1.7	0.1		CONS	2.5	0.6	1.8	0.1		
DXRAY	8.1	2.7	3.4	1.7		8.9	3.5	3.4	1.8		DXRAY	9.0	3.4	4.1	1.4		
PATH	9.1	3.6	2.3	0.9	2.3	9.0	4.0	2.0	0.8	2.2	PATH	9.0	4.0	2.8	0.5	1.6	
RAD	1.4	0.4	0.3	0.8		1.6	0.6	0.2	0.8		RAD	1.4	0.5	0.2	0.6		
ANES	4.6		3.9	0.6		5.2		4.5	0.6		ANES	4.8		4.8	0.1		
1987	ALL	OFFICE	HOSP	OPD	LAB	ALL	OFFICE	HOSP	OPD	LAB	1985	ALL	OFFICE	HOSP	OPD	LAB	
TOT	100.0	31.1	46.8	16.4	2.6	100.0	31.8	44.7	17.3	2.4	TOT	100.0	29.8	51.4	14.0	2.2	
MED	36.7	16.8	15.9	2.1		33.8	16.6	13.2	2.2		MED	34.3	16.5	14.5	1.7		
MOS	25.5	2.7	15.1	7.3		29.1	2.5	17.2	8.6		MOS	30.7	2.6	20.8	6.7		
NMOS	6.7	2.1	2.6	1.8	0.1	6.2	2.1	2.4	1.6	0.1	NMOS	5.9	1.9	2.7	1.2		
CONS	3.7	0.6	2.9	0.1		2.5	0.7	1.6	0.1		CONS	2.5	0.7	1.7	0.1		
DXRAY	8.8	3.2	3.3	2.1		8.6	3.6	2.8	2.0		DXRAY	8.9	3.5	3.4	1.8		
PATH	10.2	4.2	2.4	1.2	2.5	9.7	4.3	1.9	1.1	2.3	PATH	9.0	4.0	2.0	0.8	2.2	
RAD	1.7	0.7	0.2	0.9		1.7	0.7	0.1	0.8		RAD	1.6	0.6	0.2	0.8		
ANES	4.3		3.5	0.8		4.7		3.7	0.8		ANES	5.2		4.5	0.6		

TABLE 19 (CONTINUED)

MATRIX OF CHANGES IN ALLOWED CHARGES, CLAIMANTS, SERVICES PER CLAIMANT, AND ALLOWED CHARGE PER SERVICE, EIGHT STATE GROUP [1985/1987], AND FIVE STATE GROUP FOR BOTH 1985/1987 AND 1983/1985, ALL PATIENTS, FOR SELECTED TYPES AND PLACES OF SERVICE

TABLE 19-B PERCENTAGE DISTRIBUTION OF CHANGES IN TOTAL ALLOWED CHARGES FOR PHYSICIAN SERVICES BY SELECTED PLACES AND TYPES OF SERVICE

EIGHT STATES [85:87]					FIVE STATES [85:87]					FIVE STATES [83:85]						
85/87	ALL	OFFICE	HOSP	OPD	LAB	ALL	OFFICE	HOSP	OPD	LAB	83/85	ALL	OFFICE	HOSP	OPD	LAB
TOT	100.0	36.8	30.9	25.4	3.3	100.0	37.3	26.8	26.2	3.0	TOT	100.0	40.8	-8.5	56.2	5.3
MED	33.1	17.0	11.9	3.0		32.6	16.9	9.9	3.4		MED	20.1	20.9	-6.3	4.3	
MOS	21.4	2.4	6.9	11.3		24.8	2.3	7.4	13.6		MOS	38.8	6.3	-5.9	34.7	
NMOS	6.9	1.8	1.6	3.1		7.1	2.6	1.4	2.8		NMOS	9.5	4.1	1.1	4.1	
CONS	2.9	0.8	1.9			2.6	0.9	1.5			CONS	2.1	1.1	0.6		
DXRAY	11.0	4.5	2.8	3.3		7.7	3.9	1.1	2.4		DXRAY	8.8	3.8		4.5	
PATH	13.7	5.8	2.7	2.1	3.0	11.5	5.3	1.8	1.6	2.7	PATH	8.9	3.5	-2.4	2.5	5.1
RAD	2.5	1.6		1.0		2.1	1.2		0.8		RAD	2.6	0.7		1.8	
ANES	3.6		2.2	1.4		3.3		1.7	1.4		ANES	6.9		3.1	3.3	

TABLE 19-C TWO YEAR PERCENT CHANGE IN TOTAL ALLOWED CHARGES FOR PHYSICIAN SERVICES BY SELECTED PLACES AND TYPES OF SERVICE

EIGHT STATES [85:87]					FIVE STATES [85:87]					FIVE STATES [83:85]						
85/87	ALL	OFFICE	HOSP	OPD	LAB	ALL	OFFICE	HOSP	OPD	LAB	83/85	ALL	OFFICE	HOSP	OPD	LAB
TOT	33.0	41.6	19.6	62.4	45.8	37.2	46.5	19.4	69.6	49.7	TOT	18.5	27.2	-2.5	169.8	58.6
MED	28.8	33.6	23.0	52.3		35.4	38.3	25.3	74.2		MED	10.1	24.8	-6.4	65.6	
MOS	26.3	28.7	12.9	62.6		30.0	32.9	13.3	75.5		MOS	24.6	60.3	-4.3	418.6	
NMOS	34.2	27.1	17.1	75.7		44.4	49.8	19.7	84.6		NMOS	33.5	49.3	6.5	113.0	
CONS	24.2	42.1	19.6			39.9	49.0	33.7			CONS	15.7	33.0	6.3		
DXRAY	44.4	54.5	26.8	64.3		32.1	42.5	11.9	49.2		DXRAY	18.2	21.0		61.8	
PATH	49.5	53.1	39.1	76.8	42.3	47.5	50.2	33.1	72.1	46.6	PATH	18.3	16.2	-16.0	87.8	57.4
RAD	57.9	147.6		42.8		49.6	78.4		37.4		RAD	35.0	25.1		53.5	
ANES	26.2		18.1	76.6		24.0		14.3	92.1		ANES	26.2		12.3	734.1	

TABLE 19 (CONTINUED)

MATRIX OF CHANGES IN ALLOWED CHARGES, CLAIMANTS, SERVICES PER CLAIMANT, AND ALLOWED CHARGE PER SERVICE, EIGHT STATE GROUP [1985/1987], AND FIVE STATE GROUP FOR BOTH 1985/1987 AND 1983/1985, ALL PATIENTS, FOR SELECTED TYPES AND PLACES OF SERVICE

TABLE 19-D TWO YEAR PERCENT CHANGE IN CLAIMANTS FOR PHYSICIAN SERVICES BY SELECTED PLACES AND TYPES OF SERVICE

EIGHT STATES [85:87]					FIVE STATES [85:87]					FIVE STATES [83:85]						
85/87	ALL	OFFICE	HOSP	OPD	LAB	ALL	OFFICE	HOSP	OPD	LAB	83/85	ALL	OFFICE	HOSP	OPD	LAB
TOT	9.7	10.9	-1.3	20.7	15.9	13.2	14.2	0.2	28.4	17.5	TOT	8.8	10.2	-2.5	38.1	16.2
MED	9.5	10.8	1.1	23.1		12.9	13.8	2.3	41.9		MED	9.1	10.5	-6.8	57.0	
MOS	12.9	14.4	-1.9	48.0		16.7	18.3	-1.9	61.1		MOS	16.3	29.4	-10.1	155.2	
NMOS	72.6	88.2	0.5	40.9		66.9	81.0	1.6	50.8		NMOS	23.3	30.1	-3.1	68.3	
CONS	12.8	26.0	6.1			19.0	31.6	10.7			CONS	8.2	22.8	-1.8		
DXRAY	11.0	15.4	-4.4	25.5		12.7	13.0	-1.4	29.4		DXRAY	11.6	13.4		41.1	
PATH	8.4	-1.0	5.2	37.0	15.7	9.2	5.4	11.1	44.0	17.3	PATH	12.6	12.8	-3.6	57.7	16.2
RAD	7.4	43.1		6.6		4.9	41.9				RAD	5.7	2.7		15.0	
ANES	15.9		0.7	79.1		19.8		2.1	105.6		ANES	18.0		1.7	525.1	

TABLE 19-E TWO YEAR PERCENT CHANGE IN AVERAGE ANNUAL PHYSICIAN SERVICES PER CLAIMANT BY SELECTED PLACES AND TYPES OF SERVICE

EIGHT STATES [85:87]					FIVE STATES [85:87]					FIVE STATES [83:85]						
85/87	ALL	OFFICE	HOSP	OPD	LAB	ALL	OFFICE	HOSP	OPD	LAB	83/85	ALL	OFFICE	HOSP	OPD	LAB
TOT	10.1	11.1	11.5	18.4	17.5	20.1	22.1	18.9	27.6	33.8	TOT	-7.5	3.2	-20.2	1.0	32.5
MED	1.4	3.2	5.1	6.1	-	3.7	7.1	4.1	4.1	-	MED	-12.0	-	-15.1	-27.0	-
MOS	14.5	17.8	7.9	12.1	-	29.4	36.4	16.9	26.8	-	MOS	9.8	6.8	4.9	1.1	-
NMOS	13.6	-7.4	12.1	13.3	-	47.9	42.2	25.2	26.1	-	NMOS	1.9	-0.8	3.1	1.9	-
CONS	-7.1	0.5	-6.3	-	-	7.4	3.4	12.1	-	-	CONS	10.0	1.3	12.6	-	-
DXRAY	19.4	10.9	33.4	10.3	-	46.1	21.0	77.0	22.3	-	DXRAY	-0.2	2.9	-	9.0	-
PATH	6.7	9.7	8.3	9.4	4.3	23.8	22.8	8.2	15.6	22.4	PATH	-13.3	1.9	-69.4	-39.5	32.0
RAD	23.8	34.4	-	23.7	-	49.4	27.9	-	53.3	-	RAD	8.2	14.8	-	6.3	-
ANES	5.2	-	11.3	10.1	-	4.5	-	10.7	13.1	-	ANES	-7.8	-	-2.5	14.8	-

TABLE 19-F TWO YEAR PERCENT CHANGE IN AVERAGE ALLOWED CHARGE PER SERVICE BY SELECTED PLACES AND TYPES OF SERVICE

EIGHT STATES [85:87]					FIVE STATES [85:87]					FIVE STATES [83:85]						
85/87	ALL	OFFICE	HOSP	OPD	LAB	ALL	OFFICE	HOSP	OPD	LAB	83/85	ALL	OFFICE	HOSP	OPD	LAB
TOT	10.2	14.9	8.7	13.7	7.1	0.9	5.1	0.2	3.5	-4.7	TOT	17.8	11.9	25.3	93.5	3.0
MED	16.0	16.9	15.7	16.6		15.6	13.4	17.8	17.9		MED	14.7	13.0	18.3	44.4	
MOS	-2.4	-4.6	6.6	-2.0		-13.9	-17.6	-1.2	-14.1		MOS	-2.5	16.0	1.6	100.9	
NMOS	-31.6	-27.1	3.9	10.1		-41.5	-41.8	-5.9	-2.9		NMOS	6.2	15.7	6.6	24.2	
CONS	18.5	12.2	20.3			9.5	9.6	7.7			CONS	-2.8	7.0	-3.8		
DXRAY	9.0	20.8	-0.6	18.7		-19.8	4.3	-35.9	-5.8		DXRAY	6.1	3.7		6.3	
PATH	29.3	41.0	22.1	18.0	18.0	9.1	16.0	10.8	3.3	2.1	PATH	21.2	1.2	184.5	96.8	2.7
RAD	18.8	28.7		8.3		-4.6	-1.7		-10.4		RAD	18.0	6.1		25.5	
ANES	3.5		5.4	-10.4		-1.0		1.1	-17.4		ANES	16.1		13.3	16.2	

REVIEWING THE DISTRIBUTIONS OF ALLOWED CHARGES

Subsection A of Table 19 presents data on the distribution of allowed charges during the 1983, 1985, and 1987. These distributions are similar regardless of the state group or time period, showing perhaps the inertia of the basic core of Part B. One can observe that inpatient charges have declined as a percentage of the total and that OPD charges have increased. One can tentatively infer from this subsection that the changes exhibited in these States are mainly not abrupt, and that the five State group and the eight State group are not incomparable. (While all of the original five States are included in the eight State group, they account for less than 38 percent of total charges for the complete eight State group.)

Subsection B of Table 19 reinforces this conclusion with respect to the comparison of the five State and eight State groups for 1985/87. The relative magnitudes of the reported cells are all in the same ballparks. There are some differences of as much as four percentage points for some cells but these occurrences are infrequent. The contrast in subsection B is between the middle and right hand sections of the table. The 1983/85 growth in allowed charges was much more concentrated than that of 1985/87. Only two type of service/place of service cells accounted for as much as 10 percent of total growth; major surgery in OPD's [34.7%] and office medical care [20.9]. In contrast, the 1985/87 results show those two cells representing still significant but considerably smaller shares of growth. In addition, inpatient medical care, inpatient major surgery, and office pathology each represented at least five percent of total growth. Note that the 1983/85 data reflect the

imposition of PPS, which brought reductions in allowed charges for many inpatient services. There were no reductions among the major cells for 1985/87.

In terms of the percentage rates of growth in allowed charges by cell [Subsection C], there are two major conclusions. First, allowed charges increased virtually across the board in 1985/87. Of those cells that are reported in Subsection C, only a few of the inpatient cells exhibited increases of less than 20 percent (although still greater than 10 percent). Many were substantially higher. For the most part, the 1983/85 results were of a smaller magnitude, including some absolute declines. Second, OPD as a place of service exhibited the highest rates of growth in both time periods. The 1983/85 statistics were literally phenomenal, and they were strongly influenced by the PPS induced changes in settings for cataract surgery. However, while the 1985/87 percentage rates of growth have mathematically declined with respect to 1983/85, the absolute growth in OPD allowed charges accelerated. From 1983 to 1985 there was an increase of \$77 million for such charges. The 1985/87 increase was more than \$85 million. The OPD is still the fastest growing sector for Part B. Further, within this sector, the largest share of the increase [Subsection B] derives from major operative surgery.

Subsections D, E, and F of Table 19 effect the partition of changes in allowed charges into the three subcomponents: changes in claimants, changes in services per claimant, and changes in average allowed charges per service. These subsections dramatically reveal some of the differences between the 1983/85 data and those from 1985/87, and they suggest some of the differences between the PBS States and the original five State group. In the 1983/85

data, an aggregate increase of 18.5 percent was composed of an 8.8 percent increase in claimants, a 7.5 percent reduction in services per claimant, and an increase of 17.8 percent in allowed charges per service. The comparable statistics for the five State group for 1985/87 are 37.2% percentage growth in total allowed charges, 13.2% increase in claimants, 20.1% increase in services per claimant, and 0.9% increase in allowed charges per service. For the eight States, these statistics are 33.0% total, 9.7% claimants, 10.1% services per claimant, and 10.2% average charge per service. The latter translates very loosely into roughly equal "blame" for total increases for each of the three subcomponents of growth.

Claimant growth has previously been noted, but it is a recurring thread in the fabric of evidence about changes in allowed charges. Two points should be noted. First, with a larger aggregate increase in allowed charges, claimant growth was a less substantial share of the story for 1985/87 while much more important in 1983/85. Other factors not evident in the earlier time period contributed to expenditure growth in 1985/87. Second, and ironically, while the exclusion of lab and/or venipuncture only claimants reduces the estimates of claimant growth in the five State group from 10.9 percent in the original report to 8.8 percent in Table 19, the comparable statistic for 1985/87 was 13.2 percent. Claimant growth, while a smaller share of the 1985/87 story, continued and may have accelerated.

In both time periods, the largest percentage increases in claimants were observed in OPD settings. In fact, with the exception of the venipuncture category, the primary difference between the two time periods was the deceleration in reductions of inpatient claimants. During both time periods there were also large percentage increases in physicians offices with respect

to non-major surgery (venipunctures), and diagnostic xrays. There were also increases in pathology services performed in independent labs. With the exception of pathology services, there were stable or declining numbers of claimants for inpatient services. (A relatively large increase in claimants of office radiation therapy observed in 1985/87 but not in 1983/85 may be due to changes in technology. Both services per claimant and average allowed charges per service increased substantially for radiation therapy in physician offices. This may reflect changes in technology that are substituting linear accelerators for the older technology that used cobalt machines. The newer machines are more expensive and they involve a greater number of treatments at reduced but more precise dosage levels.)

A first major contrast with the results of the initial report involves the changes in services per claimant [Subsection E]. Over the 1983/85 period there was relative stability in services per claimant. The introduction of PPS affected the statistics through the decline in average lengths of stay and reductions in "ancillary" services provided to inpatients. The redefinition of most clinical lab services as Part A rather than Part B services also contributed to this decline.

During 1985/87, stability in services per claimant for the major cells is relatively rare. Medical care services and pathology services increased rather than decreased during 1985/87. In fact, virtually all major cells increased at rates in excess of the earlier period. Double digit increases were observed for office radiation therapy (noted above), and for diagnostic xrays in the three major settings for that service. As will be discussed below, there is a substantial difference between the PBS States and the original five State group with respect to services per claimant. The PBS States were much more stable.

On the other hand, the PBS States seemed to exhibit a much greater 1985/87 increase in the aggregate average allowed charge per service [Subsection F], although the aggregate change for either group of states was lower than that observed for 1983/85.³⁷ These differences, however, may serve more to highlight the difficulties in working with any aggregate measure of average price across differing physician services.

The 1983/85 increase in average allowed charge per service of 18.5 percent was primarily a function of two factors: the substantial increase in the number of OPD surgeries--procedures with above average charges per service relative to all other non-surgical services, and the reduction of relatively inexpensive inpatient lab tests as a result of PPS. In the absence of those two changes, the increase in average allowed charge per service would have been 7.5 percent rather than 18.5 percent. The 1985/87 relative stability in average price per service in the five State group--a 0.9 percent increase over two years--is similarly affected by a decline in average allowed charges for major operative surgery in both OPD's and physician offices, most likely due to a change in the mix of surgeries being provided in those settings. In contrast, the changes in average allowed charges for medical care services are comparable across both groups of states and for both time periods for the five State group. Even if not because of the substantial difference in sizes, because of the surgery effect in the five States, the eight State aggregate estimate of price increases must be judged more reliable.

A cell that exhibited consistent decreases in average allowed charges per service during 1985/87 was outpatient department anesthesia services.

³⁷ As background, fee screens were increased in May 1986 for Participating physicians, and in January 1987 for all physicians. The estimated increase in fee screens was 4.4 percent. The CPI for physician services increased by 14.7 percent from 1985 to 1987. (1989 Annual Report of the Board of Trustees of the Federal Supplementary Medical Insurance Trust Fund).

These reductions are most likely due to the changes made in the number of base units under certain circumstances. In August 1986 the base units for cataract procedures were reduced from 8 to 4. In April 1987 new regulations partially reduced the base units for concurrent procedures. The reduction was 10 percent for the second procedure, 25 percent for the third, and 40 percent for the fourth concurrent procedure.

DISAGGREGATED CHANGES IN CHARGES BY TYPE AND PLACE OF SERVICE, OR
DIFFERENT STATES, DIFFERENT STORIES

In examining the percentage changes in claimants, services per claimant, and average charge per service, while the basic similarities among the States again are evident, there are differences. Table 20 displays the percentage changes in each of these three components for the eight State and five State aggregates and each of the selected States for those type and place of service cells previously identified as responsible for the largest proportions of growth in total charges.

TABLE 20

PERCENTAGE CHANGES IN CLAIMANTS, SERVICES PER CLAIMANT, AND ALLOWED CHARGES PER SERVICE, EIGHT STATE [8S] AND FIVE STATE [5S] AGGREGATES AND INDIVIDUAL STATES, FOR SELECTED TYPES AND PLACES OF SERVICE, 1985/1987

		CLAIMANTS									
		8S	5S	DC	DE	IN	ND	PA	SC	SD	WA
MED											
	OFF	10.8	13.8	8.2	10.1	14.3	8.8	8.3	18.4	20.9	10.0
	HOSP	1.1	2.3	4.9	4.4	-7.0	1.1	-0.5	15.2	-1.7	11.6
	OPD	23.1	41.9	11.9	5.0	21.7	20.2	13.4	260.0	40.8	21.8
MOS											
	OFF	14.4	18.3	8.8	18.5	11.0	23.8	11.6	25.0	21.4	19.9
	HOSP	-1.9	-1.9	-0.9	3.1	-1.7	0.1	-2.3	-4.3	-3.5	-0.8
	OPD	48.0	61.1	41.6	31.1	45.3	39.7	38.9	60.1	65.7	98.6
NMOS*											
	OFF	88.2	81.0	102.1	50.6	101.6	145.5	94.0	103.9	203.6	20.5
	HOSP	0.5	1.6	1.9	0.2	-6.1	0.9	-0.5	5.4	0.4	12.0
	OPD	40.9	50.8	38.0	21.2	42.7	29.8	35.3	95.9	67.3	45.1
DXRAY											
	OFF	15.4	13.0	11.7	12.8	7.7	10.0	20.0	23.2	19.6	13.0
	HOSP	-4.4	-1.4	1.0	0.6	-3.0	-2.8	-7.6	1.4	-2.1	-0.3
	OPD	25.5	29.4	13.2	19.3	18.9	24.2	24.2	47.5	43.2	36.6
RAD											
	OFF	43.1	41.9	13.9	-57.1	38.4	11.6	59.7	-28.2	3.5	71.0
PATH											
	OFF	-1.0	5.4	-10.4	-3.3	1.4	4.7	-6.1	-10.3	17.7	16.5
	HOSP	5.2	11.1	2.0	2.5	5.8	-11.3	1.8	22.0	11.2	19.1
	OPD	37.0	44.0	14.3	23.0	29.0	23.3	35.8	99.2	81.4	43.0
	LAB	15.7	17.3	19.0	29.0	26.9	25.5	12.8	30.8	16.0	12.0
ANES											
	HOSP	0.7	2.1	-2.2	7.5	-0.9	10.7	-0.3	10.8	-2.9	1.2
	OPD	79.1	105.6	52.2	54.4	68.4	62.1	68.2	100.8	66.2	261.7

* Increase believed to be due primarily to change in coding for routine venipunctures

TABLE 20 (CONT)

PERCENTAGE CHANGES IN CLAIMANTS, SERVICES PER CLAIMANT, AND ALLOWED CHARGES PER SERVICE, EIGHT STATE [8S] AND FIVE STATE [5S] AGGREGATES AND INDIVIDUAL STATES, FOR SELECTED TYPES AND PLACES OF SERVICE, 1985/1987

<u>SERVICES PER CLAIMANT</u>										
	8S	5S	DC	DE	IN	ND	PA	SC	SD	WA
MED										
OFF	3.2	7.1	0.3	1.0	7.1	10.7	1.2	5.3	7.4	8.2
HOSP	5.1	4.1	0.9	5.5	9.9	-2.3	6.6	0.2	1.7	0.2
OPD	6.1	4.1	0.6	-3.4	-0.2	5.7	9.4	41.3	4.8	9.3
MOS										
OFF	17.8	36.4	20.0	16.3	134.9	12.0	0.9	-1.0	-2.0	14.2
HOSP	7.9	16.9	-0.8	3.8	37.6	1.0	0.8	1.7	2.2	5.5
OPD	12.1	26.8	-3.5	-2.9	59.1	0.7	2.5	1.9	-1.4	8.4
NMOS										
OFF	-7.4	42.2	24.6	-40.4	74.7	57.6	-31.1	14.0	45.6	11.4
HOSP	12.1	25.2	5.4	2.7	59.5	-2.1	3.6	7.1	0.9	1.0
OPD	13.3	26.1	2.5	6.2	46.3	1.1	4.9	6.6	2.8	1.8
DXRAY										
OFF	10.9	21.0	1.3	-1.3	65.1	4.0	1.4	6.2	3.2	5.4
HOSP	33.4	77.0	1.8	5.6	173.8	-0.3	8.0	8.5	6.1	3.7
OPD	10.3	22.3	6.8	-3.1	40.3	1.9	3.3	8.4	7.1	5.2
RAD										
OFF	34.4	27.9	28.3	-73.5	241.2	0.4	48.4	35.0	31.3	2.2
PATH										
OFF	9.7	22.8	-12.1	-2.2	25.6	9.3	-1.3	8.8	12.7	29.5
HOSP	8.3	8.2	-9.2	7.2	9.4	3.4	11.1	11.3	14.8	9.6
OPD	9.4	15.6	1.0	1.2	26.1	-0.5	6.9	12.0	7.4	5.9
LAB	4.3	22.4	16.5	-25.3	19.5	7.8	-7.1	18.5	18.0	27.4
ANES										
HOSP	11.3	10.7	10.4	21.4	15.6	-0.5	11.7	7.4	5.2	9.5
OPD	10.1	13.1	4.5	-2.2	11.8	5.5	9.2	13.4	-4.0	20.2

TABLE 20 (CONT) PERCENTAGE CHANGES IN CLAIMANTS, SERVICES PER CLAIMANT, AND ALLOWED CHARGES PER SERVICE, EIGHT STATE [8S] AND FIVE STATE [5S] AGGREGATES AND INDIVIDUAL STATES, FOR SELECTED TYPES AND PLACES OF SERVICE, 1985/1987

<u>ALLOWED CHARGES PER SERVICE</u>										
	8S	5S	DC	DE	IN	ND	PA	SC	SD	WA
MED										
OFF	16.9	13.4	17.5	17.4	13.9	16.1	20.2	15.2	14.2	12.6
HOSP	15.7	17.8	10.3	17.7	23.9	13.5	15.6	7.4	13.2	15.3
OPD	16.6	17.9	10.1	26.1	35.4	3.2	18.0	12.4	-3.9	21.8
MOS										
OFF	-4.6	-17.6	-10.2	-6.6	-59.7	18.5	14.2	27.6	1.9	3.9
HOSP	6.6	-1.2	11.7	9.7	-13.5	8.8	14.6	12.8	3.0	8.8
OPD	-2.0	-14.1	16.6	17.5	-34.6	1.5	7.1	5.5	1.4	8.3
NMOS										
OFF	-27.1	-41.8	-46.1	4.4	-57.2	-58.4	-14.7	-36.7	-58.7	8.2
HOSP	3.9	-5.9	6.4	11.2	-19.3	15.9	12.7	4.4	20.4	5.7
OPD	10.1	-2.9	17.9	14.1	-16.7	8.6	22.6	7.1	24.3	27.7
DXRAY										
OFF	20.8	4.3	36.8	29.2	-21.2	11.5	40.1	13.7	4.8	23.2
HOSP	-0.6	-35.9	17.6	16.2	-58.2	1.7	38.2	13.1	3.8	5.9
OPD	18.7	-5.8	20.3	22.2	-14.7	-0.7	39.6	18.9	-2.4	0.6
RAD										
OFF	28.7	-1.7	50.8	99.7	135.6	26.1	66.7	6.6	-0.4	-12.1
PATH										
OFF	41.0	16.0	73.6	78.7	26.2	16.9	72.5	32.4	13.3	2.1
HOSP	22.1	10.8	34.1	15.1	12.3	9.2	28.1	15.8	5.7	3.9
OPD	18.0	3.3	24.2	22.1	-2.0	11.4	27.5	23.0	8.1	7.6
LAB	18.0	2.1	12.1	36.5	-0.1	-0.7	30.5	6.1	3.5	3.7
ANES										
HOSP	5.4	1.1	5.9	4.5	0.5	4.3	9.2	4.8	4.6	0.2
OPD	-10.4	-17.4	-12.7	-7.8	-17.6	-22.1	-3.7	-23.1	-10.5	-15.7

Claimant counts in all the States increase for almost all services. The only source of declines are inpatient services of all types and office pathology services. With respect to cells experiencing some declines, there are considerable ranges in the change in claimants. Claimants of inpatient medical care, for example, declined 7.0 percent in Indiana but increased by 15.2 percent in South Carolina. Claimants of inpatient pathology declined by

11.3 percent in North Dakota but increased by 22.0 percent in South Carolina. In the most extreme example, claimants of office radiation therapy declined 57.1 percent in Delaware, but increased by 71.0 percent in Washington State. (These latter statistics reflect both the diffusion of linear accelerators and small sample variability: there were fewer than 10,000 claimants of these services in the eight States in 1987. From 1985 to 1987 there were 28 fewer claimants in Delaware; 1375 additional claimants in Washington.) For the most part, however, the state estimates are at least comparable. Across the rows of Table 20 one can observe consistent double- or single-digit patterns. Further, in all the States OPD's exhibited greater percentage increases in claimants than any other place of service.

As noted above, services per claimant patterns in the PBS States differed from those of the original five State group. The PBS States were much more stable, particularly with respect to office services. In fact, the PBS States exhibited relatively higher levels of services per claimant for many services in both 1985 and 1987. The five State group may be catching up to those levels across most cells. It has passed them for major surgery, diagnostic xrays, radiation therapy, and pathology. While the data are relatively consistent across the jurisdictions in many cases, rates of increase exhibited for Indiana most often exceed those of the other States.

It was noted that the CPI for physician services increased by 14.7 percent from 1985 to 1987. The increases in average allowed charges for medical care services are in this ballpark, as are many of the increases observed for major operative surgery, not counting Indiana. There are declines in average allowed charges per service in some of the cells, especially Indiana surgery and diagnostic xrays, but often the increases

observed exceed the CPI increase. One can also note that the increases observed in the PBS States exceed those of the other five States, virtually on a cell by cell basis. The Indiana results on average allowed charges suggest that the increase in services per claimant consists of more relatively lower priced services. In fact, there is more diversity among the States in the rates of increase in average allowed charges than was observed in the 1983/85 data.

To conclude, we are left with something of a paradox. From an aggregate national perspective Part B spending exhibited average annual rates of growth from 1983 through 1987 of 14 percent per year. When we look behind the aggregate data from some perspectives results are also stable. For example, across States, the percentages of Part B spending by place and type of service have remained fairly constant. This is partly because the spending base is so large that even substantial rates of growth, e.g., OPD surgery, do not change the base much over time. From other perspectives, however, change is more dramatic. If we ask which services account for the largest proportion of growth in outlays rather than of total outlays we may see large differences between states or time periods. From 1983 to 1985 OPD surgery accounted for the largest proportion of outlay growth; from 1985 to 1987 it was office medical care. In the Pennsylvania Blue Shield States, services per claimant and allowed charges per service both grew at approximately 10 percent from 1985 to 1987. In the five state group services per claimant grew by 20 percent while allowed charges per service grew by less than 1 percent.

Nevertheless, despite demonstrating such large differences at the disaggregated levels of analysis pursued in this study, and despite noting changes in sources in outlay growth across states and across time periods,

from other perspectives little had changed. Thus average annual Part B growth remained relatively high between 1983 and 1987 despite the fact that there may have been different reasons for that growth in different states and at different times. Since this study has been exploratory, and one of the first comparative analyses of disaggregated Part B data at different time periods, we hope that in analyzing these data we have examined the right states and made the right comparisons across the right time periods to gain insight into the causes of differential growth in Part B outlays. But in trying to be thorough in examining the data, one cannot look at every cell from every state. The question becomes which states and which cells will provide enough detail to accurately reveal the phenomena underlying changes in Part B expenditures. It remains the case that there are times when too much data is still too little.

CONCLUSIONS

This report has documented a variety of refinements in the study of changes in charges for Medicare Part B physician services from 1985 to 1987. This set of analyses has been a followup to the initial report that focused on the topic of changes over the 1983/85 time period.

The initial report found that the two major contributing factors during the 1983/85 timeframe were the increase in OPD surgery and the increase in the number of claimants for all services, especially including OPD surgery. That report examined the data for evidence of a number of hypothesized physician behaviors that might have been anticipated during the period of a Medicare fee freeze (July 1983-May 1986). These included upcoding of office visit claims,

provision of additional office visits, upcoding of procedure claims, and unbundling of office visit packages through the provision of additional, separately billed, ancillary services. For the most part, the evidence at best only weakly supported those hypotheses. There appeared to be some upcoding of office visits, particularly in Indiana. Additional visits, procedure upcoding, and ancillary unbundling were not much in evidence.

The current report refined and repeated many of these analyses using additional data from the original set of States plus three new jurisdictions. With respect to the aggregate analyses of changes in charges, there were substantial increases in Medicare Part B allowed charges from 1985 to 1987 in all of the jurisdictions under study. The phenomenon of additional claimants continued during that time frame at levels equal to and perhaps greater than observed during 1983/85. Because of the near doubling of the 1983/85 increase in charges observed in the 1985/87 data, additional claimants were a smaller explanatory factor during those years. The major factor appeared to involve additional utilization of services by each claimant. This was evident in both the aggregate data and in the separate analysis of ancillary services provided in conjunction with a claimant's initial office visit during the year. The reasons for such increases were not further investigated.

Whereas the major source of 1983/85 growth was the single cell of OPD surgery, the 1985/87 increases were not nearly as concentrated. Office medical care was the number one source of growth in all States with medical care and major surgery providing the bulk of growth by type of service. There were many increases in both services per claimant and average allowed charges per service.

The upcoding analysis of office visits was replicated and this method was extended to analyze potential changes in the distribution of hospital

visits. Both distributions were found to be primarily stable over the 1985/87 time period. The two year net financial impact of upcoding with respect to both types of visits was between 1.6-1.8 percent. At the same time, the distributions of visits were found to be stable at very different levels across the States. This may suggest that some visits are overcoded and that benefit savings might be generated if the distributions of visits in "high visit" States could be moved more towards the average distribution. The analysis of office visit frequency, however, found little or no evidence of additional provision of visits in excess of the increase in claimants for office medical care services.

An analysis of common procedure codes was added. This analysis found substantial consistency among the States in terms of the most common codes. This analysis also revealed the substantial apparent increases in the use of the CPT-4 code for routine venipuncture as a result of the recoding of a previous HCPCS lab code. The claimant question was also addressed in an examination of the distribution of annual allowed charges across claimants. The histograms produced by state by year found considerable consistency across both states and years. These findings do not tend to confirm conjectures that additional claimants in the Medicare system are relatively marginal claimants using few services and/or just meeting the Part B deductible. A spinoff from this analysis (presented in the Appendix) suggested that the national threshold adopted for the catastrophic health care program would not have had equitable results across the states. In addition, the original thresholds may have been established at too high a level to provide additional financial protection to the desired fraction of all Part B beneficiaries.

APPENDIX

INTRODUCTION

The Appendix consists of four parts. The first part includes a set of 11 tables that were the basis for the disaggregated analysis of changes in Medicare allowed charges. This section of the Appendix is prefaced by a review of these data and sets of explanations on how to read those tables. The second section of the Appendix contains some suggestions for future research. The final section contains information developed in the course of the study that was relevant to planning for what had been the anticipated implementation of a catastrophic health insurance program under Medicare Part B. These results, of course, are now less relevant to current policy deliberations, however, they do shed light on existing variations in individual beneficiaries' total allowed charges, and complement the results with respect to the analyses of claimants. The fourth section of the Appendix is the Glossary of Acronyms and Terms.

READING THE TABLES

This section of the Appendix contains a set of eleven tables. The data represent the eight state aggregate with the numbers derived from the mathematical addition of the data from all of the eight states.

The eleven tables can also be thought of as representing two sets of six and five tables, respectively. Tables 1-6 in each set present "raw" numbers from both 1985 and 1987. Tables 7-11 in each set are based on the changes observed between 1985 and 1987. As will be explained below, Table 7 identifies each place and type of service cell that was no less than .05 percent of the value of the net increase for all types and places of service for any jurisdiction. Any cells that did not meet that criterion have been suppressed. Thus Tables 7-11 allow the reader to focus on those cells that had at least a modest contribution to the changes in allowed charges between 1985 and 1987. This relieves the reader from the distraction of cells that would exhibit otherwise spectacular increases from minuscule bases. However, because the original data are presented in Tables 1-6, the reader can compute rates of change for any cell of interest.

The eleven tables are as follows:

TABLE 1	TOTAL ALLOWED CHARGES FOR PHYSICIAN SERVICES BY SELECTED PLACES AND TYPES OF SERVICE, EIGHT STATES, ALL PATIENTS, 1985 AND 1987
TABLE 2	TOTAL CLAIMANTS OF PHYSICIAN SERVICES BY SELECTED PLACES AND TYPES OF SERVICE, EIGHT STATES, ALL PATIENTS, 1985 AND 1987
TABLE 3	TOTAL PHYSICIAN SERVICES BY SELECTED PLACES AND TYPES OF SERVICE, EIGHT STATES, ALL PATIENTS, 1985 AND 1987

TABLE 4	AVERAGE ANNUAL PHYSICIAN SERVICES PER CLAIMANT BY SELECTED PLACES AND TYPES OF SERVICE, EIGHT STATES, ALL PATIENTS, 1985 AND 1987
TABLE 5	AVERAGE ALLOWED CHARGE PER SERVICE BY SELECTED PLACES AND TYPES OF SERVICE, EIGHT STATES, ALL PATIENTS, 1985 AND 1987
TABLE 6	PERCENTAGE DISTRIBUTION OF TOTAL APPROVED CHARGES FOR PHYSICIAN SERVICES BY SELECTED PLACES AND TYPES OF SERVICE, EIGHT STATES, ALL PATIENTS, 1985 AND 1987
TABLE 7	PERCENTAGE DISTRIBUTION OF CHANGES IN TOTAL ALLOWED CHARGES FOR PHYSICIAN SERVICES BY SELECTED PLACES AND TYPES OF SERVICE, EIGHT STATES, ALL PATIENTS, 1985 TO 1987
TABLE 8	TWO YEAR PERCENT CHANGE IN TOTAL ALLOWED CHARGES FOR PHYSICIAN SERVICES BY SELECTED PLACES AND TYPES OF SERVICE, EIGHT STATES, ALL PATIENTS, 1985 TO 1987
TABLE 9	TWO YEAR PERCENT CHANGE IN CLAIMANTS OF PHYSICIAN SERVICES BY SELECTED PLACES AND TYPES OF SERVICE, EIGHT STATES, ALL PATIENTS, 1985 TO 1987
TABLE 10	TWO YEAR PERCENT CHANGE IN AVERAGE ANNUAL PHYSICIAN SERVICES PER CLAIMANT BY SELECTED PLACES AND TYPES OF SERVICE, EIGHT STATES, ALL PATIENTS, 1985 TO 1987
TABLE 11	TWO YEAR PERCENT CHANGE IN AVERAGE ALLOWED CHARGE PER SERVICE BY SELECTED PLACES AND TYPES OF SERVICE, EIGHT STATES, ALL PATIENTS, 1985 TO 1987

Elements Common to All Tables

The row and column headings for all of the tables are identical. Rows denote types of service. The mnemonics used for those types of service are as follows:

MED	medical care
MOS	major operative surgery
NMOS	surgery not involving major operative surgery
CONS	consultations
DXRAY	diagnostic xray
PATH	pathology
RAD	therapeutic radiology
ANES	anesthesia
TOT	all types of service including those not separately listed, i.e., the sum of the eight labelled rows should not be expected to be identical to the row labelled "TOT." ³⁸

Columns denote places of service. The mnemonics used for place of service are as follows:

OFF	physician office
HOME	patient home
HOSP	inpatient hospital
NURS	skilled nursing facility
OPD	outpatient hospital
LAB	laboratory
ALL	all places of service including those not separately listed, i.e., the sum of the six labelled columns should not be expected to be identical to the column labelled "ALL." ³⁹

38 With respect to Tables 2, 4, and 8, the TOT row involves users of all types of service. The number of users of all types of service is the number of elements in the mathematical union of all of the sets of users by type of service. In all of the tables the TOT row will not be less than the greatest individual row. However, the users of all service will be less than the sum of each of the users of the individual services. For the other tables the TOT row is likely to exceed the sum of the individual service rows.

39 With respect to Tables 2, 4, and 8, the ALL column involves users in all places of service. The number of users in all places of service is the number of elements in the mathematical union of all of the sets of users by place of service. In all of the tables the ALL column will not be less than the greatest individual column. However, the users of all service will be less than the sum of each of the users of the individual services. For the other tables the ALL column is likely to exceed the sum of the individual service columns.

Individual Tables

Table 1	The entries in each cell of Table 1 involve the sum of allowed charges for that cell. Separate entries are provided for both 1985 and 1987.
Table 2	The entries in each cell of Table 2 involve the number of unique claimants of services represented by each cell. Separate entries are provided for both 1985 and 1987.
Table 3	The entries in each cell of Table 3 involve the total number of services provided in that cell. Separate entries are provided for both 1985 and 1987.
Table 4	The entries in each cell of Table 4 involve the mathematical ratio of the relevant entries of Table 3 and Table 2. That is, each entry is an estimate of the average annual number of services per claimant of that type and place of service. Separate entries are provided for both 1985 and 1987.
Table 5	The entries in each cell of Table 5 involve the mathematical ratio of the relevant entries of Table 1 and Table 3. That is, each entry is an estimate of the average allowed charge per service for that type and place of service. Separate entries are provided for both 1985 and 1987.
Table 6	The entries in each cell of Table 6 involve the mathematical ratio of the relevant entries in Table 1 and the grand total for Table 1. That is, each place and type of service entry represents the percent of total allowed charges across all places and types of service. Separate entries are provided for both 1985 and 1987.
Table 7	<p>Table 7 involves computations from both the 1985 and 1987 sections of Table 1. The absolute difference between the corresponding 1985 and 1987 cells is expressed as a ratio to the net increase in total allowed charges, viz., the absolute difference between the 1985 and 1987 entries for all types of service in all places of service. [The TOT row of the ALL column.] For this reason, the TOT row of the ALL column is 100.0 in Table 7.</p> <p>In Table 1, one finds that \$402 million was allowed for medical care services in physician offices in 1985 compared to a total of \$537 million in 1987, a net increase of \$135 million. The net increase for all services in all places of service was \$794 million.</p>

As a result, the net increase in allowed charges for medical care services in physician offices was equal in value to 17.0 percent of the net increase in all types and places of service.

Tables 7-11 suppress the values for any cell that would have had a Table 7 value less than .05 percent. Thus, for example, there is no entry in Table 7 for anesthesia in patients' homes. From Table 1 one can infer that there was a \$4,460 increase in allowed charges for those services. This is roughly six millionths of the value of the increase in allowed charges for all places and types of service.

Table 8	Table 8 presents the two year rate of change in allowed charges for each reported cell expressed as a percent.
Table 9	Table 9 presents the two year rate of change in claimants of service for each reported cell expressed as a percent.
Table 10	Table 10 presents the two year rate of change in services per claimant of the relevant service for each reported cell expressed as a percent.
Table 11	Table 11 presents the two year rate of change in average allowed charges per service for each reported cell expressed as a percent.

TABLES

TABLE 1 TOTAL APPROVED CHARGES (\$) FOR PHYSICIAN SERVICES BY SELECTED PLACES AND TYPES OF SERVICE
EIGHT STATES ALL PATIENTS 1985 AND 1987

1985	ALL	OFFICE	HOME	HOSP	NURS	OPD	LAB
TOT	2409668760	703557260	14740446	1254768354	34915026	322999108	56949885
MED	913052636	401829669	12785614	413336783	29649198	44989724	979759
NMOS	158995007	53208092	436450	72137777	657616	32087715	41401
MOS	647414446	67493145	785851	428670911	682492	142998382	62377
CONS	94999304	14244686	139380	76825943	802987	2086443	245070
DXRAY	196276370	65360482	336890	83060536	2993626	41131544	257153
PATH	219354210	87392966	166288	54308959	109412	21726668	55358765
RAD	34700027	8581875	12682	7003526	1161	19092215	659
ANES	109823767	287470	7415	94358510	3146	14293395	1915
1987	ALL	OFFICE	HOME	HOSP	NURS	OPD	LAB
TOT	3204109955	996023573	13585325	1500561629	36980489	524409773	83012394
MED	1175766589	536904552	10306713	508264070	30031937	68523058	924822
NMOS	213427118	67620117	356760	84455524	1041309	56384321	2392238
MOS	817431047	86834856	677853	483830398	954075	232522747	95310
CONS	117821450	20242530	154155	91886762	978482	3478847	345453
DXRAY	283469376	101004566	513998	105356505	3690730	67562664	432888
PATH	327835082	133773501	442394	75563358	256552	38412128	78801723
RAD	54781234	21248097	1524	6240458	2308	27261485	2087
ANES	138624320	355686	11875	111453488	6885	25246714	3147

TABLE 2 TOTAL CLAIMANTS FOR PHYSICIAN SERVICES BY SELECTED PLACES AND TYPES OF SERVICE
EIGHT STATES ALL PATIENTS 1985 AND 1987

1985	ALL	OFFICE	HOME	HOSP	NURS	OPD	LAB
TOT	3174137	2839376	135959	1029103	204750	1426338	863072
MED	3035688	2711483	124273	846056	194647	790925	13946
NMOS	874579	575166	7608	240650	15203	162201	4908
MOS	760736	336028	6121	338665	8162	156440	171
CONS	614890	189242	1775	446689	8421	41838	3310
DXRAY	1778940	763652	5796	759158	26012	887529	3326
PATH	2016698	1436989	6898	482173	3846	352273	857100
RAD	32917	6857	56	11924	7	21699	8
ANES	395272	1604	42	321353	22	82916	11
1987	ALL	OFFICE	HOME	HOSP	NURS	OPD	LAB
TOT	3480896	3149781	103639	1015924	208671	1720889	999900
MED	3324715	3003826	90843	855644	189975	973683	12679
NMOS	1509528	1082734	8220	241925	26733	228564	243229
MOS	859192	384500	4927	332170	9932	231582	179
CONS	693562	238377	1867	473776	10784	58482	4001
DXRAY	1974236	880947	5227	725869	30285	1113446	5873
PATH	2185316	1423099	5517	507135	13874	482448	991460
RAD	35345	9814	20	10149	13	23122	15
ANES	458100	2268	60	323678	43	148508	15

TABLE 3 TOTAL PHYSICIAN SERVICES BY SELECTED PLACES AND TYPES OF SERVICE
EIGHT STATES ALL PATIENTS 1985 AND 1987

1985	ALL	OFFICE	HOME	HOSP	NURS	OPD	LAB
TOT	67787457	29762430	540559	24779074	1550237	5570340	5093767
MED	35815197	17877741	469038	14000797	1390300	1733961	27054
NMOS	2286999	1596813	15037	412996	30197	216660	7177
MOS	1615280	850865	13098	501833	17320	213237	221
CONS	1621351	236425	2688	1295208	13499	56848	4872
DXRAY	6781737	1479476	12532	3334979	87952	1777574	6242
PATH	14000318	7018259	16101	1337780	9710	556267	5047994
RAD	875561	146894	296	168738	34	559407	14
ANES	4103701	9580	239	3626689	91	441633	67
1987	ALL	OFFICE	HOME	HOSP	NURS	OPD	LAB
TOT	81813018	36685135	428899	27264170	1688053	7956983	6934659
MED	39775433	20442524	346461	14878030	1248303	2265115	20903
NMOS	4485322	2785907	16430	465411	67668	345855	788213
MOS	2088596	1147138	10300	531156	21431	353728	214
CONS	1698504	299317	2516	1287577	14298	76257	6267
DXRAY	8998785	1893285	11473	4255036	245795	2460312	9082
PATH	16188378	7621478	13351	1523874	88254	833162	6091976
RAD	1163866	282612	48	143349	82	737335	27
ANES	5002644	11816	408	4064948	225	870493	105

TABLE 4 AVERAGE ANNUAL PHYSICIAN SERVICES PER CLAIMANT BY SELECTED PLACES AND TYPES OF SERVICE
EIGHT STATES ALL PATIENTS 1985 AND 1987

1985	ALL	OFFICE	HOME	HOSP	NURS	OPD	LAB
TOT	21.36	10.48	3.98	24.08	7.57	3.91	5.90
MED	11.80	6.59	3.77	16.55	7.14	2.19	1.94
NMOS	2.61	2.78	1.98	1.72	1.99	1.34	1.46
MOS	2.12	2.53	2.14	1.48	2.12	1.36	1.29
CONS	2.64	1.25	1.51	2.90	1.60	1.36	1.47
DXRAY	3.81	1.94	2.16	4.39	3.38	2.00	1.88
PATH	6.94	4.88	2.33	2.77	2.52	1.58	5.89
RAD	26.60	21.42	5.29	14.15	4.86	25.78	1.75
ANES	10.38	5.97	5.69	11.29	4.14	5.33	6.09
1987	ALL	OFFICE	HOME	HOSP	NURS	OPD	LAB
TOT	23.50	11.65	4.14	26.84	8.09	4.62	6.94
MED	11.96	6.81	3.81	17.39	6.57	2.33	1.65
NMOS	2.97	2.57	2.00	1.92	2.53	1.51	3.24
MOS	2.43	2.98	2.09	1.60	2.16	1.53	1.20
CONS	2.45	1.26	1.35	2.72	1.33	1.30	1.57
DXRAY	4.55	2.15	2.19	5.86	8.12	2.21	1.55
PATH	7.41	5.36	2.42	3.00	6.36	1.73	6.14
RAD	32.93	28.80	2.40	14.12	6.31	31.89	1.80
ANES	10.92	5.21	6.80	12.56	5.23	5.86	7.00

TABLE 5 AVERAGE APPROVED CHARGE PER SERVICE [\$] BY SELECTED PLACES AND TYPES OF SERVICE
EIGHT STATES ALL PATIENTS 1985 AND 1987

1985	ALL	OFFICE	HOME	HOSP	NURS	OPD	LAB
TOT	35.55	23.64	27.27	50.64	22.52	57.99	11.18
MED	25.49	22.48	27.26	29.52	21.33	25.95	36.21
NMOS	69.52	33.28	29.03	174.67	21.78	148.10	5.77
MOS	400.81	79.32	60.00	854.21	39.40	670.61	282.25
CONS	58.53	60.25	51.85	59.32	59.48	36.70	50.30
DXRAY	28.94	44.18	26.88	24.91	34.04	23.14	41.20
PATH	15.67	12.45	10.33	40.60	11.27	39.06	10.97
RAD	39.63	58.42	42.84	41.51	34.13	34.13	47.07
ANES	26.76	30.01	31.03	26.02	34.57	32.36	28.58
1987	ALL	OFFICE	HOME	HOSP	NURS	OPD	LAB
TOT	39.16	27.15	31.67	55.04	21.91	65.91	11.97
MED	29.56	26.26	29.75	34.16	24.06	30.25	44.24
NMOS	47.58	24.27	21.71	181.46	15.39	163.03	3.04
MOS	391.38	75.70	65.81	910.90	44.52	657.35	445.37
CONS	69.37	67.63	61.27	71.36	68.43	45.62	55.12
DXRAY	31.54	53.35	44.80	24.76	15.02	27.46	47.66
PATH	20.25	17.55	33.14	49.59	2.91	46.10	12.94
RAD	47.07	75.18	31.76	43.53	28.15	36.97	77.30
ANES	27.71	30.10	29.11	27.42	30.60	29.00	29.97

TABLE 6 PERCENTAGE DISTRIBUTION OF TOTAL APPROVED CHARGES FOR PHYSICIAN SERVICES BY SELECTED PLACES AND TYPES OF SERVICE
EIGHT STATES ALL PATIENTS 1985 AND 1987

1985	ALL	OFFICE	HOME	HOSP	NURS	OPD	LAB
TOT	100.0	29.2	0.6	52.1	1.4	13.4	2.4
MED	37.9	16.7	0.5	17.2	1.2	1.9	
NMOS	6.6	2.2		3.0		1.3	
MOS	26.9	2.8		17.8		5.9	
CONS	3.9	0.6		3.2		0.1	
DXRAY	8.1	2.7		3.4	0.1	1.7	
PATH	9.1	3.6		2.3		0.9	2.3
RAD	1.4	0.4		0.3		0.8	
ANES	4.6			3.9		0.6	
1987	ALL	OFFICE	HOME	HOSP	NURS	OPD	LAB
TOT	100.0	31.1	0.4	46.8	1.2	16.4	2.6
MED	36.7	16.8	0.3	15.9	0.9	2.1	
NMOS	6.7	2.1		2.6		1.8	0.1
MOS	25.5	2.7		15.1		7.3	
CONS	3.7	0.6		2.9		0.1	
DXRAY	8.8	3.2		3.3	0.1	2.1	
PATH	10.2	4.2		2.4		1.2	2.5
RAD	1.7	0.7		0.2		0.9	
ANES	4.3			3.5		0.8	

TABLE 7 PERCENTAGE DISTRIBUTION OF CHANGES IN TOTAL APPROVED CHARGES
FOR PHYSICIAN SERVICES BY SELECTED PLACES AND TYPES OF SERVICE
EIGHT STATES ALL PATIENTS 1985/1987

	ALL	OFFICE	HOME	HOSP	NURS	OPD	LAB
TOT	100.0	36.8		30.9		25.4	3.3
MED	33.1	17.0		11.9		3.0	
NMOS	6.9	1.8		1.6		3.1	
MOS	21.4	2.4		6.9		11.3	
CONS	2.9	0.8		1.9			
DXRAY	11.0	4.5		2.8		3.3	
PATH	13.7	5.8		2.7		2.1	3.0
RAD	2.5	1.6				1.0	
ANES	3.6			2.2		1.4	

TABLE 8 TWO YEAR PERCENT CHANGE IN TOTAL APPROVED CHARGES FOR PHYSICIAN SERVICES BY SELECTED PLACES AND TYPES OF SERVICE
EIGHT STATES ALL PATIENTS 1985/1987

	ALL	OFFICE	HOME	HOSP	NURS	OPD	LAB
TOT	33.0	41.6		19.6		62.4	45.8
MED	28.8	33.6		23.0		52.3	
NMOS	34.2	27.1		17.1		75.7	
MOS	26.3	28.7		12.9		62.6	
CONS	24.2	42.1		19.6			
DXRAY	44.4	54.5		26.8		64.3	
PATH	49.5	53.1		39.1		76.8	42.3
RAD	57.9	147.6				42.8	
ANES	26.2			18.1		76.6	

TABLE 9 TWO YEAR PERCENT CHANGE IN CLAIMANTS FOR PHYSICIAN SERVICES BY SELECTED PLACES AND TYPES OF SERVICE

	EIGHT STATES			ALL PATIENTS		1985/1987	LAB
	ALL	OFFICE	HOME	HOSP	NURS		
TOT	9.7	10.9		-1.3		20.7	15.9
MED	9.5	10.8		1.1		23.1	
NMOS	72.6	88.2		0.5		40.9	
MOS	12.9	14.4		-1.9		48.0	
CONS	12.8	26.0		6.1			
DXRAY	11.0	15.4		-4.4		25.5	
PATH	8.4	-1.0		5.2		37.0	15.7
RAD	7.4	43.1				6.6	
ANES	15.9			0.7		79.1	

TABLE 10 TWO YEAR PERCENT CHANGE IN AVERAGE ANNUAL PHYSICIAN SERVICES PER CLAIMANT BY SELECTED PLACES AND TYPES OF SERVICE

	EIGHT STATES			ALL PATIENTS		1985/1987	LAB
	ALL	OFFICE	HOME	HOSP	NURS		
TOT	10.1	11.1		11.5		18.4	17.5
MED	1.4	3.2		5.1		6.1	
NMOS	13.6	-7.4		12.1		13.3	
MOS	14.5	17.8		7.9		12.1	
CONS	-7.1	0.5		-6.3			
DXRAY	19.4	10.9		33.4		10.3	
PATH	6.7	9.7		8.3		9.4	4.3
RAD	23.8	34.4				23.7	
ANES	5.2			11.3		10.1	

TABLE 11 TWO YEAR PERCENT CHANGE IN AVERAGE APPROVED CHARGE PER SERVICE BY SELECTED PLACES AND TYPES OF SERVICE

	EIGHT STATES			ALL PATIENTS		1985/1987	LAB
	ALL	OFFICE	HOME	HOSP	NURS		
TOT	10.2	14.9		8.7		13.7	7.1
MED	16.0	16.9		15.7		16.6	
NMOS	-31.6	-27.1		3.9		10.1	
MOS	-2.4	-4.6		6.6		-2.0	
CONS	18.5	12.2		20.3			
DXRAY	9.0	20.8		-0.6		18.7	
PATH	29.3	41.0		22.1		18.0	18.0
RAD	18.8	28.7				8.3	
ANES	3.5			5.4		-10.4	

SOME SUGGESTIONS FOR FUTURE RESEARCH

In the course of conducting this research there were a host of other questions that had to be pushed aside in order to remain within the scope of work of the project. Below are listed three of the potential studies that were so tempting they warrant mentioning at this time.

As indicated in the report, a limited examination was conducted with respect to the feasibility of reviewing surgical patterns of care for hospitalized patients, particularly those involving multiple surgical procedures within a one or two day time frame. These tentative beginnings suggested that there was material in the patient history files that could be used to begin to analyze the appropriateness of those patterns, but additional skills--in particular, clinical ones--would be needed to proceed with these analyses. The 100 percent patient histories have an advantage over available Part A records, because they can provide more detail about both the services provided during a patient's hospitalization and the services provided in other settings before, during, and following the hospitalization. Even primarily descriptive analyses based on 100 percent data from a limited number of states might pave the way for national studies using BMAD and other HCFA data, that otherwise might be suspect.

The analyses in the current report show some of the "How?" of expenditure increases, but little or none of that directly gets at the question of "Why?" A major study can and should be conducted to explore the whys of the determinants of increases in utilization that occurred between 1985 and 1987. There will be many competing hypotheses, but the most interesting may involve the comparison of increases in patient demand for physician services given falling beneficiary out-of-pocket costs with

potential physician induced demands given frozen or restricted physician fees. Following the initiation of the Participation Program, assignment rates have increased by 30 percentage points, and total and per capita unassigned liabilities have declined by 18 and 26 percent, respectively. This should have been expected to lead to increases in patient demand. On the other hand, there were no increases in physicians' allowed charges between July 1983 and May 1986. Further, billed charges had also been restricted as of October 1984. Believers in theories of physician induced demand would have expected increases in utilization by 1987 if not as early as 1985.

Such a study could concentrate on the differences in growth of allowed charges between beneficiaries who receive primarily assigned services from their physicians versus those that continue to receive care from physicians not accepting assignment. In this regard, one would compare the experience of patients of Participating physicians, those of relatively high assignment non-Pars, and those of non-Par physicians with low assignment rates. Virtually all of the growth in Medicare Part B allowed charges since October 1984 has been in assigned charges.

The phenomenon of additional claimants has been verified in both the initial report and the current report, but some critics remain skeptical. In particular, given the findings with respect to North Dakota, it is clear that many patients must migrate into that state to receive services. One could argue that variations in migration could appear to increase claimant counts based on carrier data. The data cleaning rules to eliminate claimants with lab-claims-only or venipuncture-claims-only should have reduced the most obvious source of additional marginal claimants that might consist of specimens-only. People as whole persons, however, do travel across state borders to obtain physician services, so some of the carrier data will represent partial treatments, e.g., referrals. Data has been assembled from

HCFA's HISKEW files that could be matched with the carrier data to partition out only those claimants listed as resident in the state where they receive physician services. The analyses described in the current report could be replicated with the resident claimant data to eliminate in migration as a complicating factor.

CATASTROPHIC HEALTH INSURANCE LIMITS

A byproduct of the stability of the distribution of charges was a brief examination of the potential impacts of the 1988 legislation mandating limits to the coinsurance liability under Part B. This legislation has since been repealed. The original legislation called for a limit of \$1375 in beneficiaries' coinsurance liability during 1990, with annual readjustments to assure that 7 percent of Part B enrollees each year would receive this additional financial protection. The refined data from the carrier patient history files is not quite the correct data since it has no information on either enrollees who are not claimants nor allowed charges for Part B services reimbursed by Medicare intermediaries. Nonetheless, these data can give a partial estimate of the some of the financial consequences that might have been observed with respect to the catastrophic coverage initially planned for 1990.

The data were sorted to identify to the nearest \$25, the allowed charge level that would include the lowest 93 percent of all claimants in each jurisdiction for each year from 1983 to 1987. Given that there are enrollees who are not claimants, this will be a slight overestimate of the allowed charge level that would include 93 percent of all enrollees. This counterbalances to some extent the omission from these data of non-physician Part B services.

The data for the eight jurisdictions at hand suggest that the original limit of \$1375 would not have provided catastrophic coinsurance protection to as much as 7 percent of enrollees. The original limit would imply annual allowed charges of no less than \$6575 for an individual, and in each jurisdiction, even as early as 1983, there were such individuals in each of the eight jurisdictions. As late as 1987, however, 93 percent of claimants in the metropolitan Washington, D.C. locality had approved charges of \$3875 or less. Each of the other jurisdictions would have required a lower total. Extrapolating the growth from 1984 to 1987 in each State for the 93rd percentile of claimants indicates that less than 7 percent of patients would be expected to have total allowed charges in excess of \$6575. In fact, in South Carolina and South Dakota 93 percent of claimants in 1990 might have roughly only \$2550-\$2575 or less in annual allowed charges.

TABLE A.1

ANNUAL ALLOWED CHARGES ENCOMPASSING 93 PERCENT OF ALL CLAIMANTS, BY STATE, 1983-1987

	ND	SD	SC	IN	WA	PA	DC	DE
1983	2000	1800	1550	2000	2350			
1984	2125	1925	1650	2100	2500	2725	3475	2175
1985	2175	2025	1775	2225	2550	2925	3500	2275
1986	2400	2200	1875	2425	2750	3175	3625	2125
1987	2525	2225	2050	2675	3100	3550	3875	1950
EST 1990 93%	3025	2575	2550	3425	3850	4625	4325	1750
EST 1990 LIMIT ON COINSURANCE	590	500	495	670	755	910	850	335

This data analysis has two additional pertinent results. First, assuming that some form of a national catastrophic coinsurance limit is reintroduced into the Medicare program very different proportions of enrollees may benefit in the different States. Proportionately fewer enrollees in States with relatively low allowed charges are likely to become eligible for

such coverage. A national catastrophic limit may require more of a catastrophe for beneficiaries in some States.

Second, in the aggregate, even covering only 7 percent of the "most expensive" enrollees implies a significant cut in total coinsurance liability. In spite of the different levels of allowed charges in the eight selected jurisdictions, it appears that 93 percent of claimants incur from 56 to 60 percent of total allowed charges. The stability of the distribution of allowed charges is again evidenced in Table A.2, below. This obviously implies a reduction of from 40 to 44 percent in total beneficiary coinsurance liability through this form of protection.⁴⁰

TABLE A.2
PERCENT OF TOTAL ALLOWED CHARGE LIABILITY OWED BY 93 PERCENT OF ALL CLAIMANTS

	ND	SD	SC	IN	WA	PA	DC	DE	MIN	MAX
1983	58	58	58	57	57				57	58
1984	58	57	57	57	56	59	58	59	56	59
1985	57	57	57	57	58	59	57	59	57	59
1986	58	57	57	57	59	59	58	56	57	59
1987	59	56	56	56	59	60	58	52	56	60

Table A.3, below, shows both the annual allowed charge levels and the percent of total allowed charges encompassing various percentages of claimants. The consistency of results across these jurisdictions suggests that covering only 2 percent of the most expensive claimants would reduce aggregate coinsurance liability by nearly 20 percent.

40 This is a possible overestimate given the dual eligible status of some Part B enrollees. Further, to the extent that other enrollees with catastrophic Part B expenses are covered by Medigap insurance the initial reduction in actual liabilities would also be lower, but one could expect some significant subsequent reductions in Medigap premium levels.

TABLE A.3

DISTRIBUTION OF ALLOWED CHARGES BY PERCENTILE OF CLAIMANTS, SELECTED JURISDICTIONS, 1987.

PERCENTILE OF CLAIMANTS
APPROVED CHARGE LEVEL AT THAT PERCENTILE

%	ND	SD	SC	IN	WA	PA	DC	DE
99	6250	5400	5075	6575*	6575*	6575*	6575*	5350
98	4700	4075	3800	5050	5725	6575*	6575*	4025
97	3850	3425	3225	4175	4800	5475	6225	3325
96	3400	3000	2825	3625	4200	4775	5375	2800
95	3050	2675	2525	3225	3775	4275	4750	2425
93	2525	2225	2050	2675	3100	3550	3875	1950
90	2025	1825	1650	2100	2450	2800	3075	1475
85	1450	1175	1100	1475	1775	2075	2175	950
80	1250	1000	775	1250	1250	1550	1575	650
75	950	750	575	750	950	1200	1200	575
50	275	200	200	250	375	400	425	125
25	100	100	75	100	150	150	150	75

* Beneficiaries with allowed charges in excess of the initial proposed catastrophic limit were grouped into a single "catastrophic" class. This includes more than 1% of claimants in Indiana and Washington, and more than 2% of claimants in Pennsylvania and metropolitan D.C.

PERCENTILE OF CLAIMANTS
CUMULATIVE PERCENT OF APPROVED CHARGES AT THAT PERCENTILE

%	ND	SD	SC	IN	WA	PA	DC	DE
99	88.5	87.6	87.4	86.0	85.3	81.7	76.6	85.6
98	81.2	80.0	79.8	79.2	81.7	81.7	76.6	77.0
97	75.2	74.1	73.9	73.2	75.9	76.0	74.7	70.2
96	70.4	68.9	68.7	68.0	71.0	71.1	69.5	64.4
95	65.9	64.2	64.1	63.4	66.8	66.8	65.1	59.6
90	49.2	46.9	46.6	46.5	50.3	50.4	48.4	41.7
85	37.3	34.3	34.8	34.6	38.8	39.1	37.0	30.6
80	33.7	31.0	26.9	30.7	30.5	30.5	29.0	23.2
75	27.6	25.5	21.0	20.8	24.6	24.5	22.9	21.3
50	8.0	7.0	7.3	7.0	9.2	7.8	7.5	4.9
25	1.8	2.6	1.8	1.9	2.1	1.9	1.7	2.5

GLOSSARY OF ACRONYMS AND TERMS

- 5-S: An acronym used to denote the five State aggregate included in the initial report and repeated for this study. These states include Indiana, Washington, South Carolina, North Dakota, and South Dakota.
- 8-S: An acronym used to denote the eight State aggregate included in this study only. In addition to including the original five State group (Indiana, Washington, South Carolina, North Dakota, and South Dakota), this group includes Pennsylvania, Delaware, and the locality for metropolitan Washington, D.C.

ADDITIONAL CLAIMANTS:

Any increases in the number of claimants from 1983 to 1985 are referred to in terms of additional claimants. See also CLAIMANT.

ALLOWED CHARGE:

An individual charge determination made by a Medicare carrier on a covered Part B medical service or supply. In the absence of unusual medical circumstances, it is the lowest of: 1) the physician's or supplier's customary charge for that service, 2) the adjusted prevailing charge for similar services in the locality, 3) the actual charge made by the physician or supplier, and 4) the carrier's private business charge for a comparable service. Also called approved charge or reasonable charge.

- ANES: Type of service anesthesia--Services for anesthesia including the appropriate pre- and post-operative visits, administration of anesthetic, and transfusion of fluids and/or blood incident to the anesthesia or surgery.

- ASC: Ambulatory surgical center.

- ASSIGNMENT: An agreement by a provider (physician or supplier) to accept a Medicare beneficiary's rights to benefits under Supplementary Medical Insurance (Part B), to bill the Medicare carrier rather than the patient, and to accept Medicare's approved charge paid by the carrier as payment in full (excluding the beneficiary's 20 percent coinsurance and the deductible). The provider may then bill the beneficiary only for the coinsurance and any applicable deductible.

- ASSIST: Type of service, assistance at surgery--surgical assistance rendered upon the request of the primary surgeon and governed by the rules for such service prescribed by the carrier.

- BDMS: The HCFA Bureau of Data Management and Strategy.

- CARRIER: Organizations, typically Blue Shield Plans or commercial insurance firms, under contract to the Health Care Financing Administration for administering Part B of the Medicare

program. Their tasks include computing reasonable charges for physician services, making actual payments, determining whether claims are for covered services, denying claims for noncovered services, and denying claims for unnecessary use of services.

CLAIMANT: For the purpose of this study, a claimant is a Medicare beneficiary who has received at least one service that was recorded with a positive approved charge. Claimants may be defined by type or place of service. The counts of claimants reported in the study are based on counts of the number of unique patient identifiers associated with a specific type and/or place of service.

CONS: Type of service, consultation--refers to the professional service rendered by a physician whose opinion or advice has been requested by another physician or agency for the evaluation and/or treatment of a patient.

DRG: Diagnosis-related group.

DXRAY: Type of service, diagnostic x-ray--includes x-ray and related services undertaken for diagnostic purposes. Includes portable x-ray services after 12/31/67.

HCPCS: HCFA's Common Procedure Coding System.

HOME: Place of service, home

HOSP: Place of service, inpatient hospital

IN: Indiana

LAB: Place of service, independent laboratory

LEVEL ONE HCPCS CODES:
Those HCPCS procedure codes that are identical to CPT-4 procedure codes. See also HCPCS.

LEVEL TWO HCPCS CODES:
Level two codes are alphanumeric codes developed by HCFA for services that are not included in CPT-4. These include but are not limited to procedure codes for non-physician services. See also HCPCS.

MOS: Major operative surgery. Surgical services within this category would when provided to a hospitalized beneficiary lead that hospitalization to be categorized as a Surgical DRG admission.

MED: Type of service, medical care--includes all physician services, including podiatrists and surgical chiropodists not elsewhere classified, and covers office visits, home visits, nursing home visits, and nonsurgical hospital visits. Psychiatric services, diagnostic services, allergy testing, therapeutic procedures, special dermatological

procedures, and physical medicine services are also included. Consultation is excluded.

MEI: Medicare Economic Index.

ND: North Dakota

NMOS: Non-major operative surgery. This is a residual category based on HCFA's standard TOS category of surgery and the Major Operative Surgery category created for this study. Physician services within HCFA's surgical TOS that are not associated with a surgical DRG are included in the NMOS category.

NURS: Place of service, skilled nursing facility

OFF: Place of service, office

OPD: Place of service, hospital outpatient department

OVERCODING: Differences between two or more jurisdictions in their distributions of codes at a single point in time. For the purpose of this report, a conceptual distinction is made between changes in the distribution of codes over time and differences between two or more jurisdictions in their distributions of codes at a single point in time. The label for the first is "upcoding;" the second "overcoding." (Often the second phenomenon is referred to as upcoding in the sense that a code used on a particular claim might be higher than it ought to be rather than higher than it used to be for a comparable case in a previous time period. The phrase appears to be used in the sense that a physician may have "upcoded" the claim.) The distinction should be maintained between the two phenomena because overcoding without upcoding is theoretically possible, as is upcoding without overcoding.

PARTICIPATING PHYSICIAN:

A physician practice that has elected to provide all Medicare Part B services on an assigned basis for a year. In return for foregoing the right to bill for Part B services on an unassigned basis, the participating physician is listed in a directory of participating physicians available to beneficiary organizations and may receive greater increases in Medicare approved charges than nonparticipating physicians.

PATH: Type of service, diagnostic laboratory--Laboratory services, regardless of where rendered, required in the diagnosis of disease or injury. Also includes certain mechanical or machine tests such as EKG, EEG, BMT, etc.

PBS: Pennsylvania Blue Shield. Alternatively, the set of jurisdictions for which Pennsylvania Blue Shield was the Medicare carrier during 1984/1987: Pennsylvania, Delaware,

and the locality for metropolitan Washington, D.C.

POS: Place of service.

PPS: Prospective Payment System.

PRO: Peer Review Organization.

PROPAC: The Prospective Payment Assessment Commission

RAD: Type of service, radiation therapy--Therapeutic services, such as x-ray, radon, radium, and isotopes for the treatment of malignancies, tumors of bones, brain, or spinal cord, angiomas, vascular nevi, lymphomas, leukemia, thyroid disease, etc.

SC: South Carolina

SD: South Dakota

SURG: Type of service, surgery--includes those procedures recognized in the surgical section of Current Procedural Terminology published by the AMA and covers services pertaining to incision, excision, repair, suture, destruction, introduction, fractures, manipulation, dislocations, amputation, endoscopy, and the like.

TOS: Type of service.

UNBUNDLING: Unbundling denotes a situation in which a "bundle" of physician services previously billed as a single service are split or "unbundled" and separately itemized on a physician bill.

UPCODING: Upcoding is intended to include the wide variety of non-price phenomena having the effect of increasing average charges per service within a category of closely related services. Thus upcoding would not include increases in average approved charges due to a fee screen year update. It would include an increase in average approved charges for office visits if the distribution across the alternative visit categories had changed controlling for any fee screen update. Increases in the average allowed charge for a particular category of surgery due to physicians' adoption of a new technology would also be included as upcoding. See also OVERCODING.

WA: Washington

FIGURE 1.0

MCMENAMIN DISTRIBUTION, FOLLOWUP OFFICE VISITS
SELECTED STATES ANNUAL DATA, 1983/1987

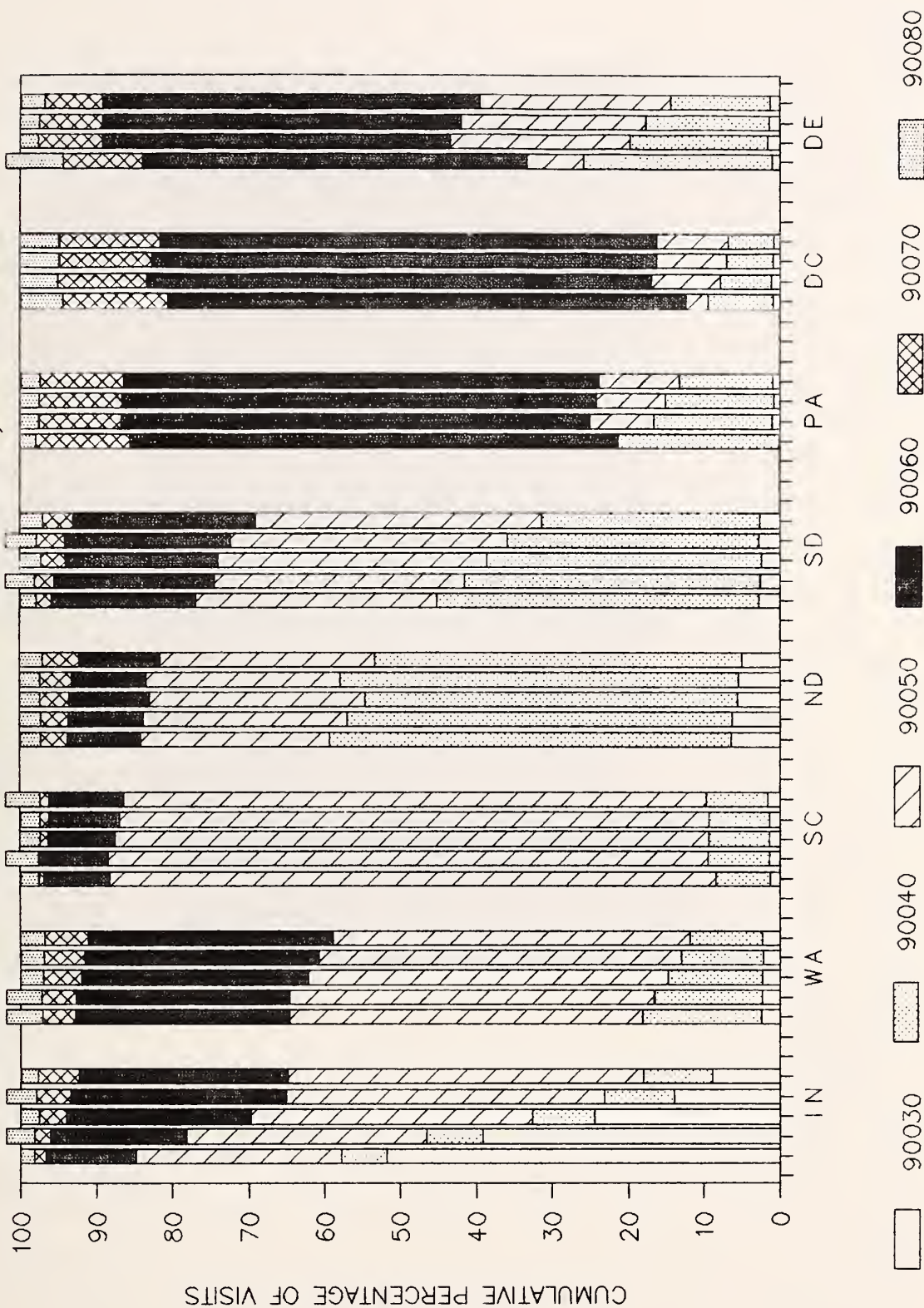


FIGURE 1.1

MC MENAMIN DISTRIBUTION, FOLLOWUP OFFICE VISITS
METROPOLITAN WASHINGTON, 1983/1987

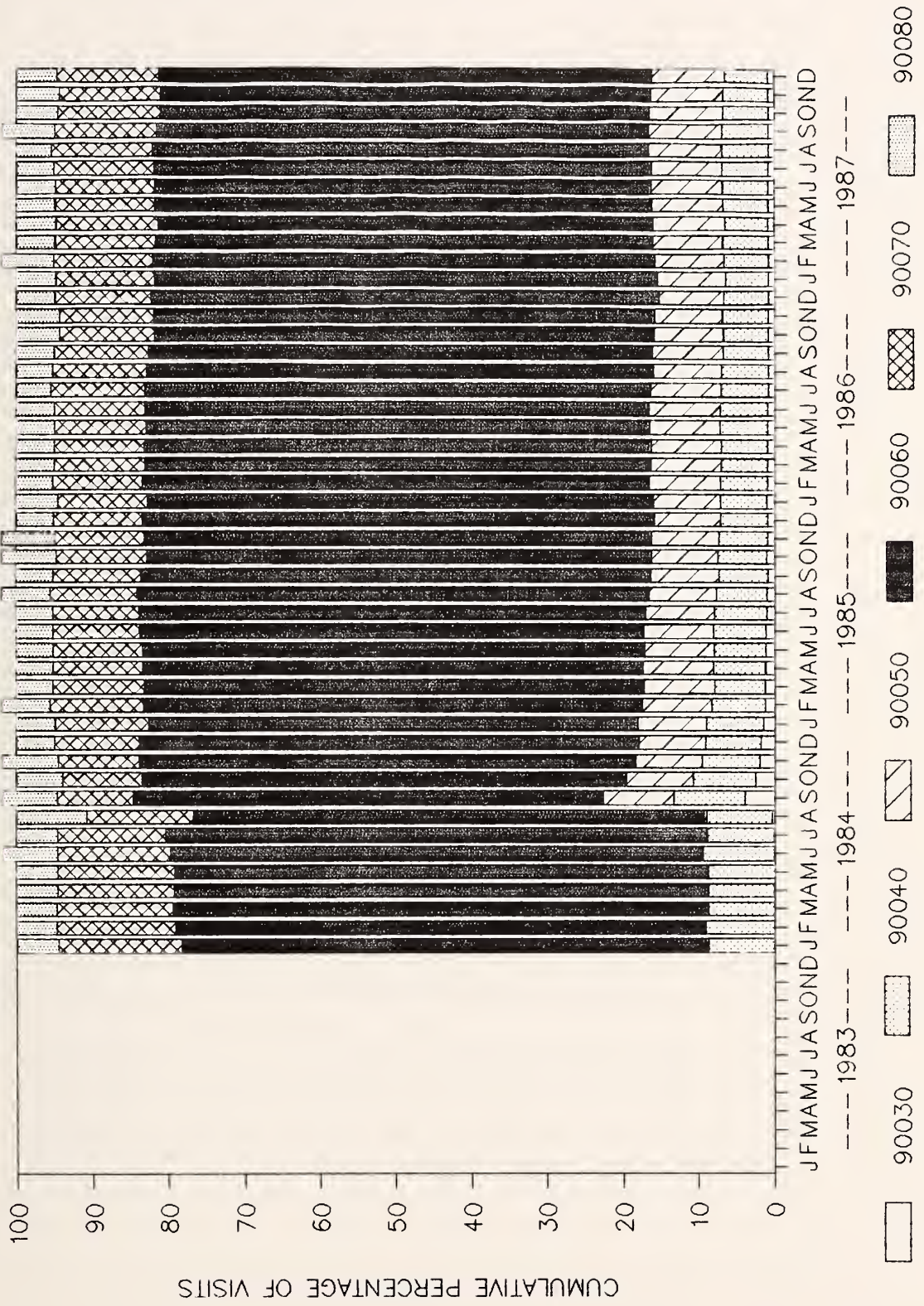


FIGURE 1.2

MCMENAMIN DISTRIBUTION, FOLLOWUP OFFICE VISITS DELAWARE, 1983/1987

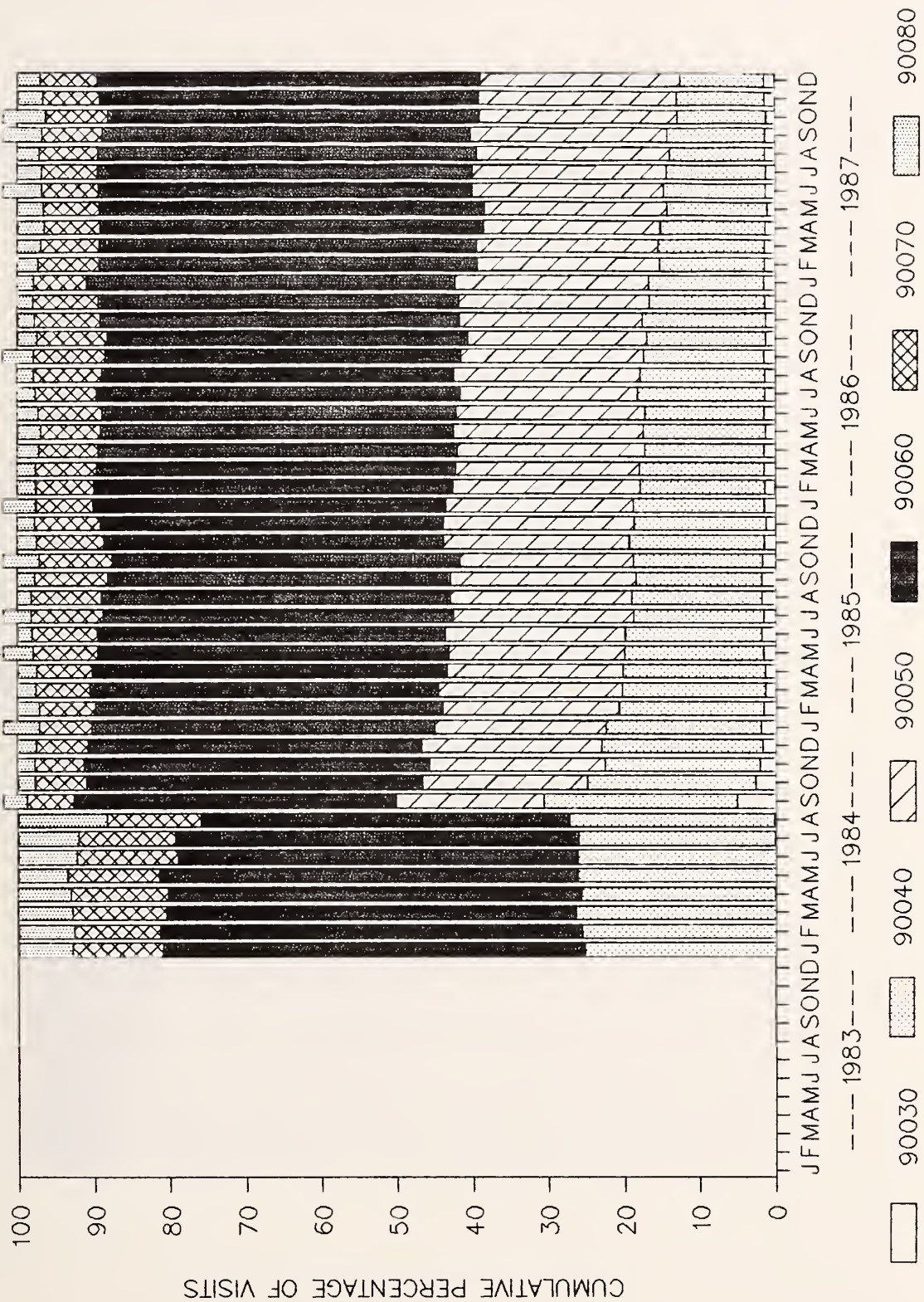


FIGURE 1.3

MCMENAMIN DISTRIBUTION, FOLLOWUP OFFICE VISITS
INDIANA, 1983/1987

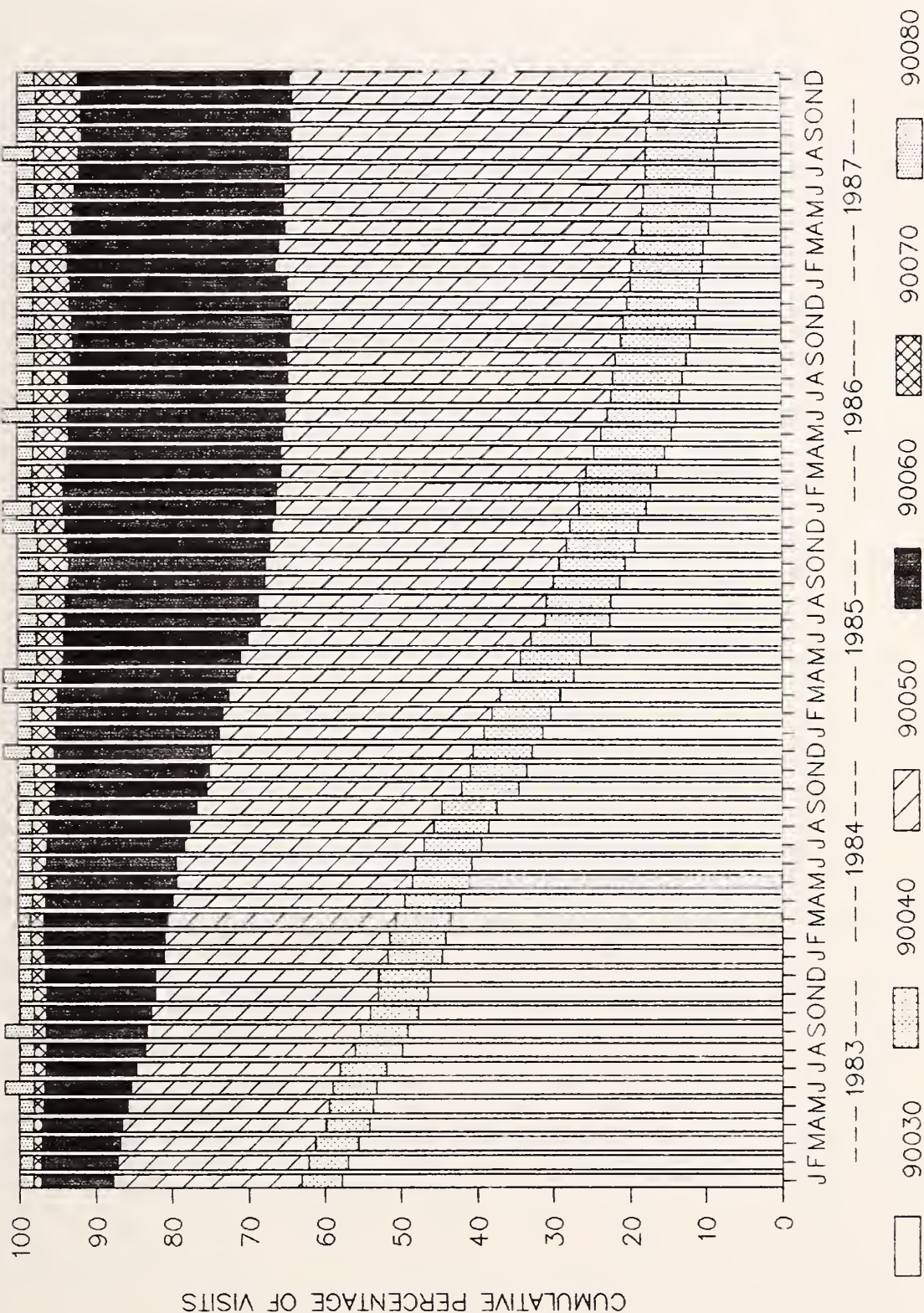


FIGURE 1.6

MCMENAMIN DISTRIBUTION, FOLLOWUP OFFICE VISITS SOUTH CAROLINA, 1983/1987

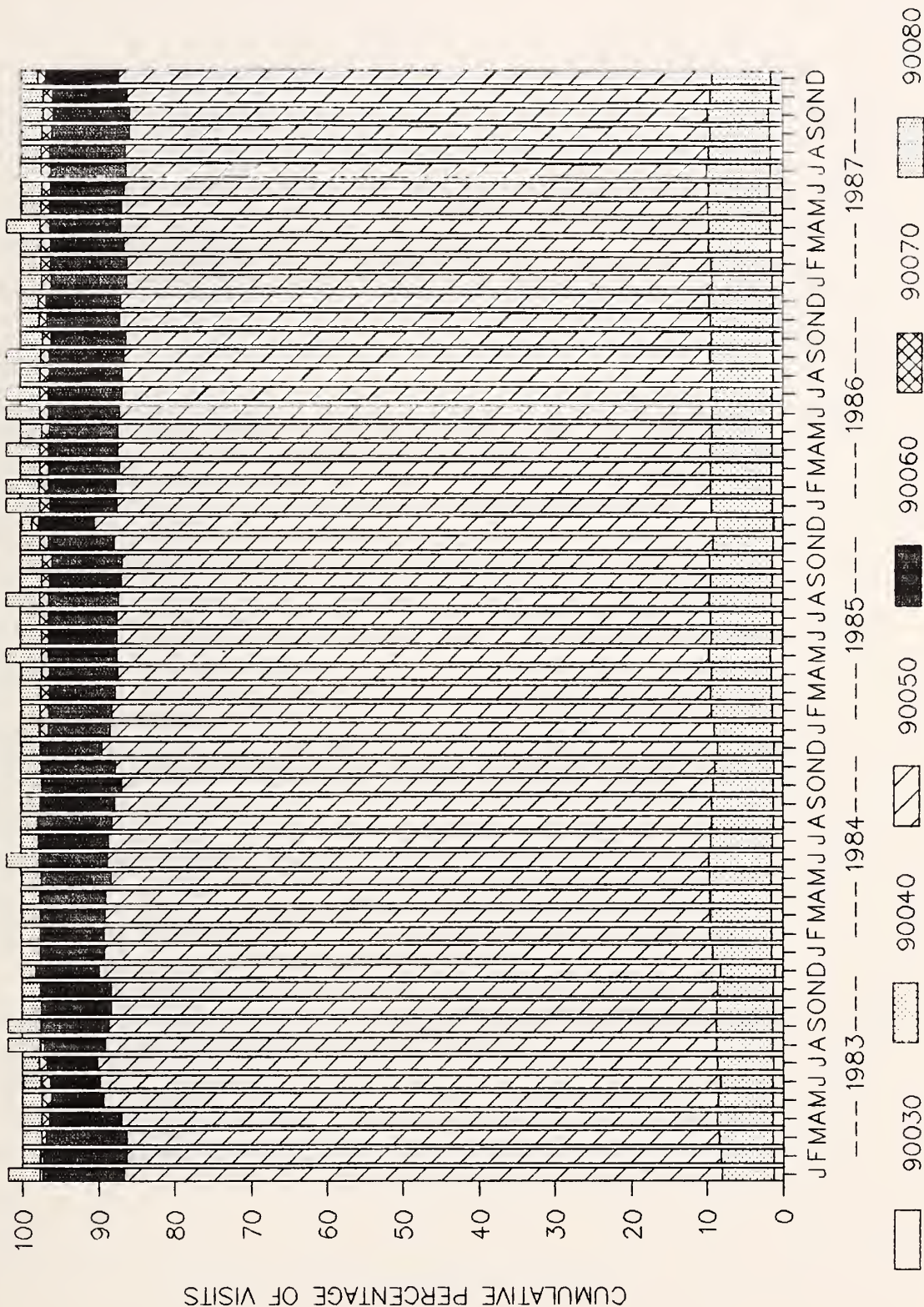


FIGURE 1.7

MCMENAMIN DISTRIBUTION, FOLLOWUP OFFICE VISITS SOUTH DAKOTA, 1983/1987

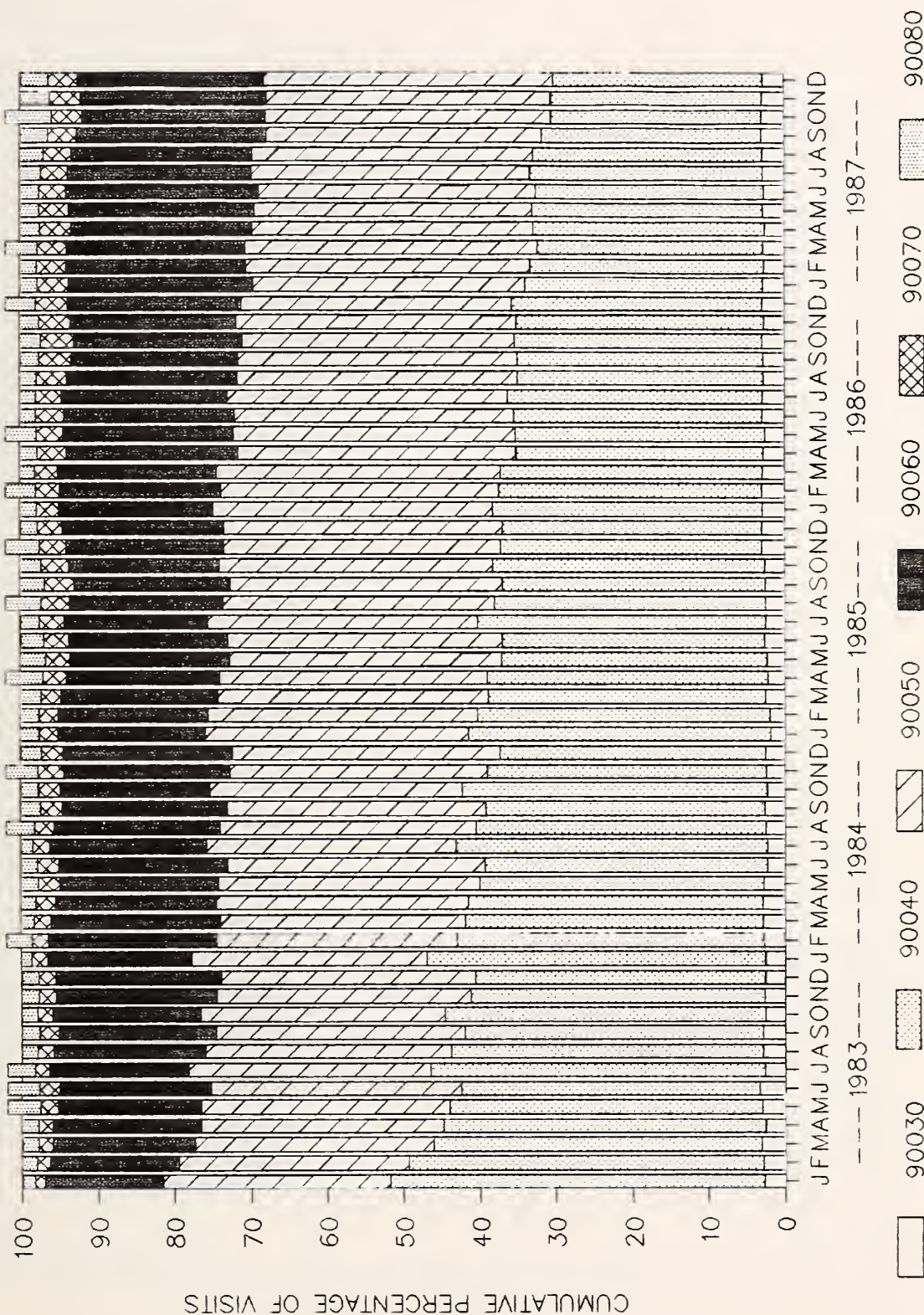
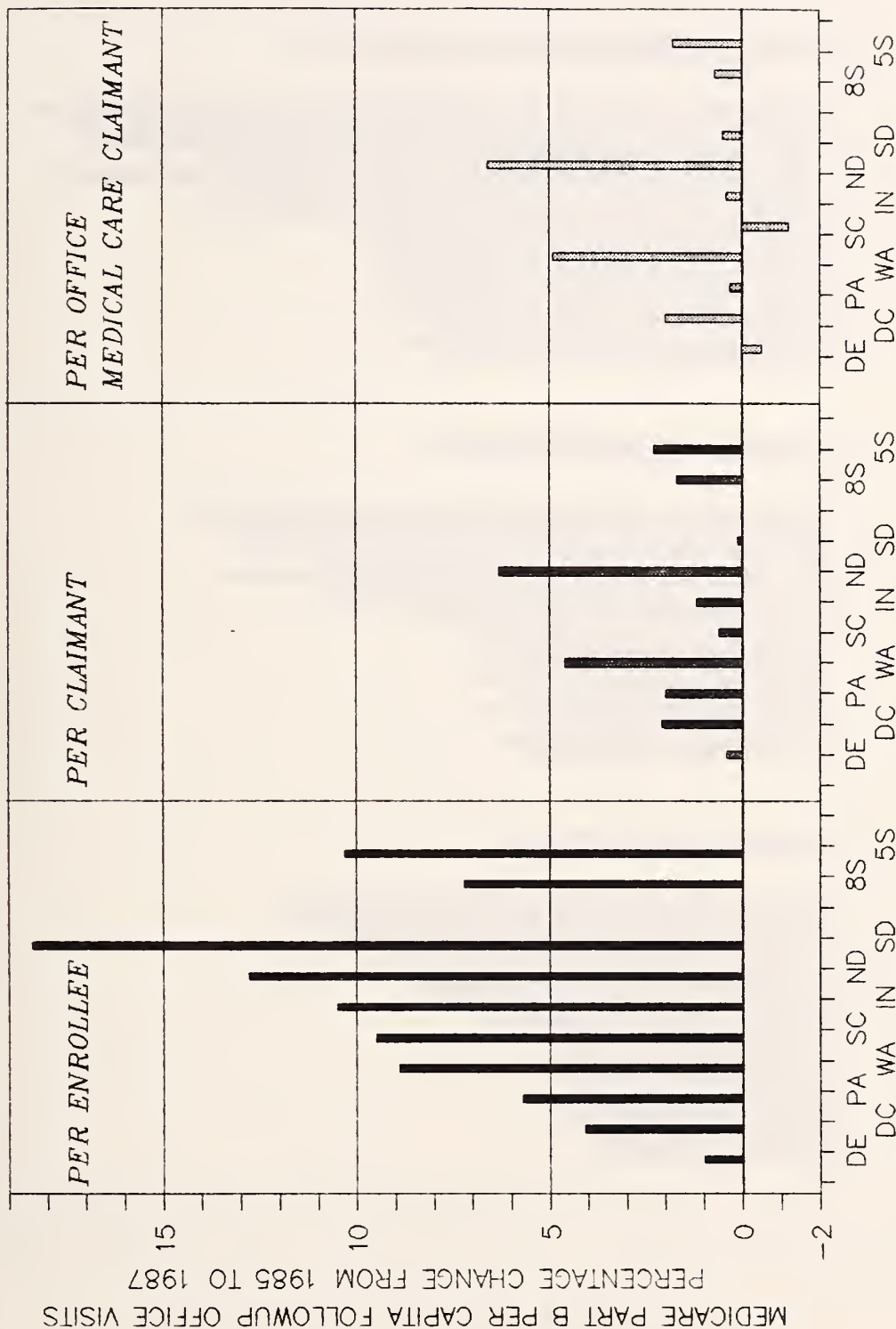


FIGURE 2

MEDICARE 85/87 PER CAPITA OFFICE VISIT GROWTH
DEPENDS ON WHICH HAT YOU LOOK UNDER



SELECTED STATES AND AGGREGATES

FIGURE 3
SERVICES IN WINDOW PER OFFICE VISIT CLAIMANT:
WINDOW LENGTHS OF 7, 15, AND 30 DAYS FROM FIRST VISIT

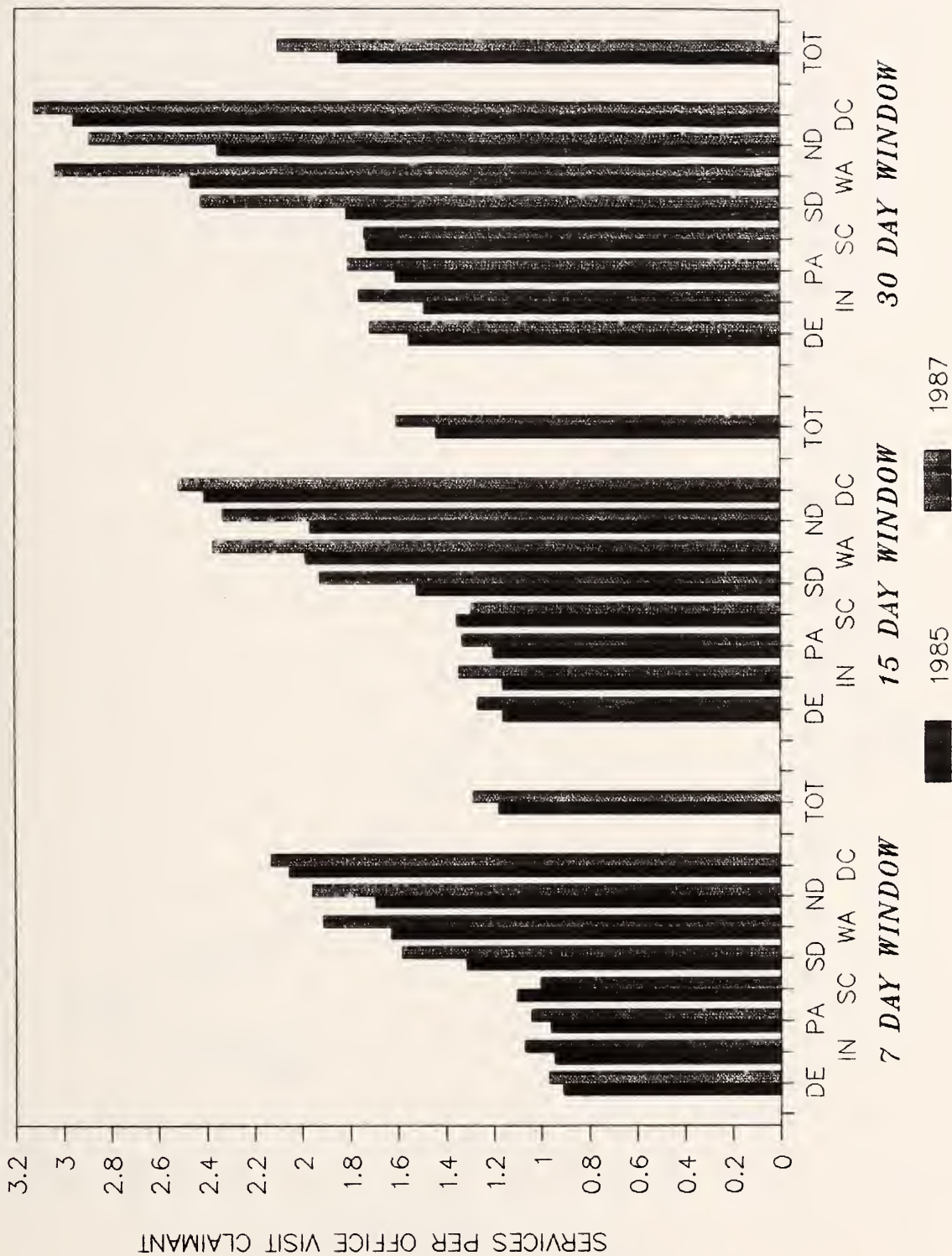


FIGURE 4.1

DISTRIBUTION OF CLAIMANTS BY APPROVED CHARGE CLASSES
EIGHT JURISDICTIONS, 1985 AND 1987

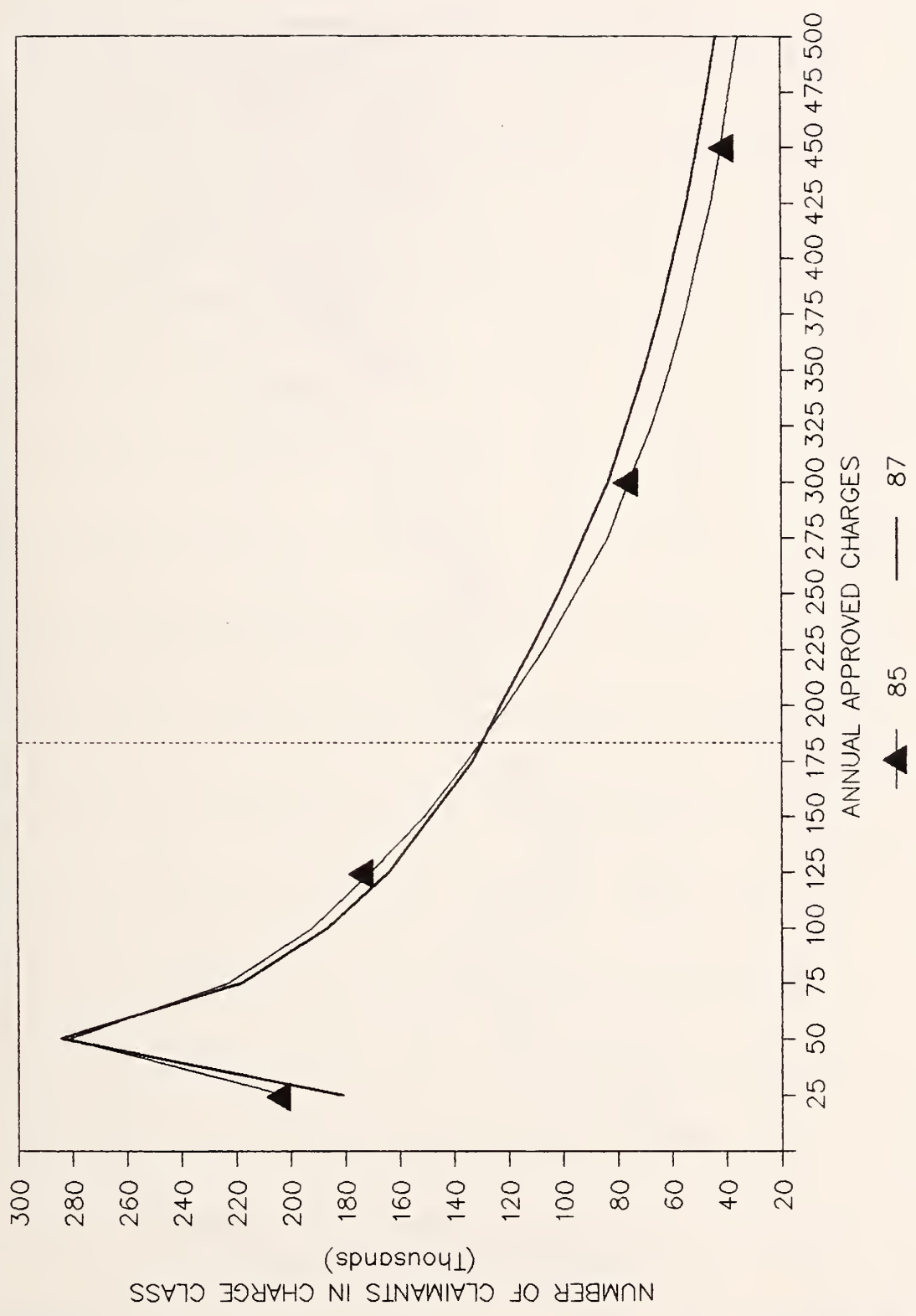


FIGURE 4.2
GROWTH RATES WITHIN \$25 APPROVED CHARGE CATEGORIES
RELATIVE TO AGGREGATE GROWTH IN ALL CLAIMANTS

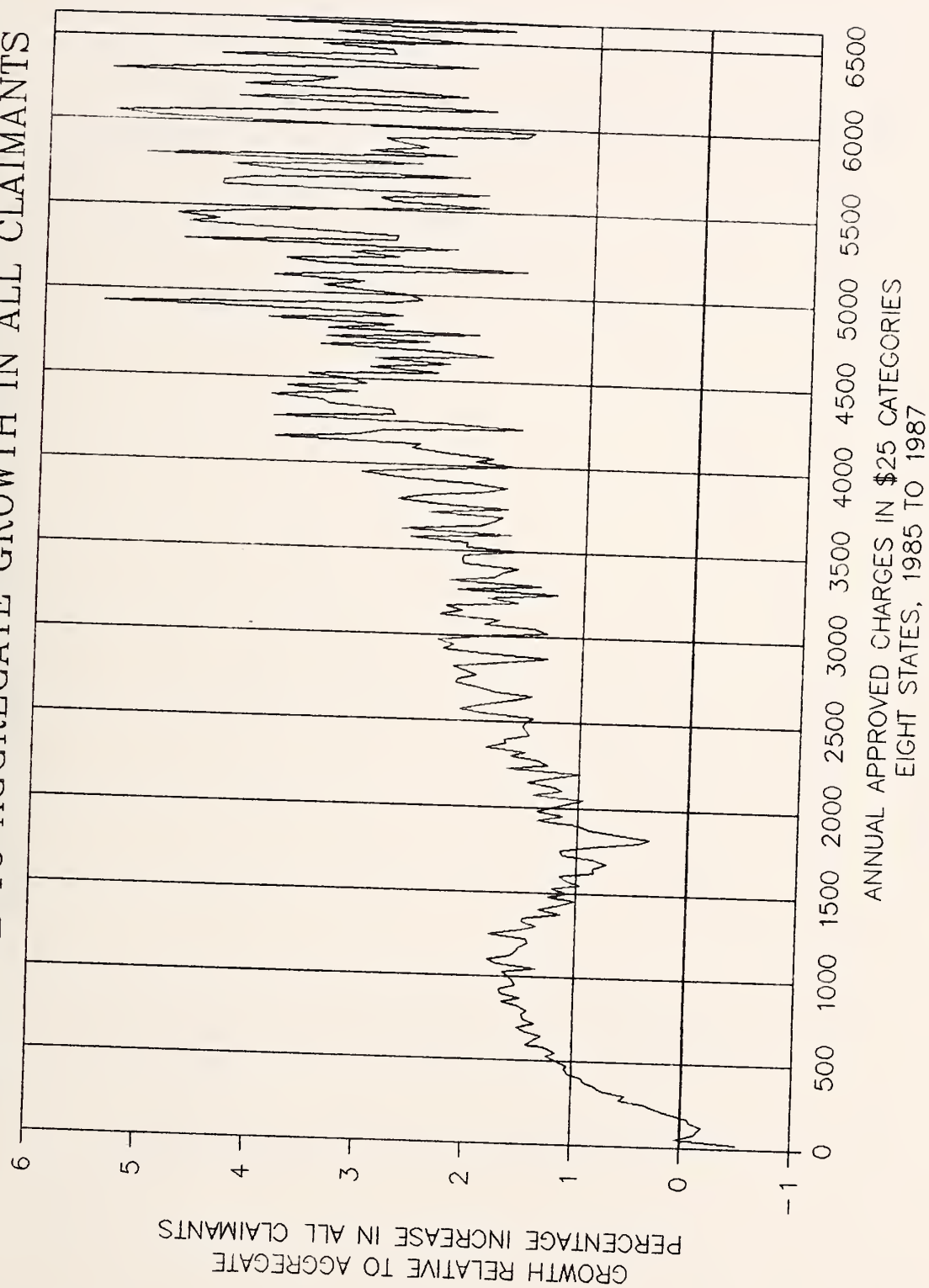


FIGURE 4.3

LORENZ DISTRIBUTION OF ALLOWED CHARGES AND CLAIMANTS
EIGHT STATES, 1984 - 1987

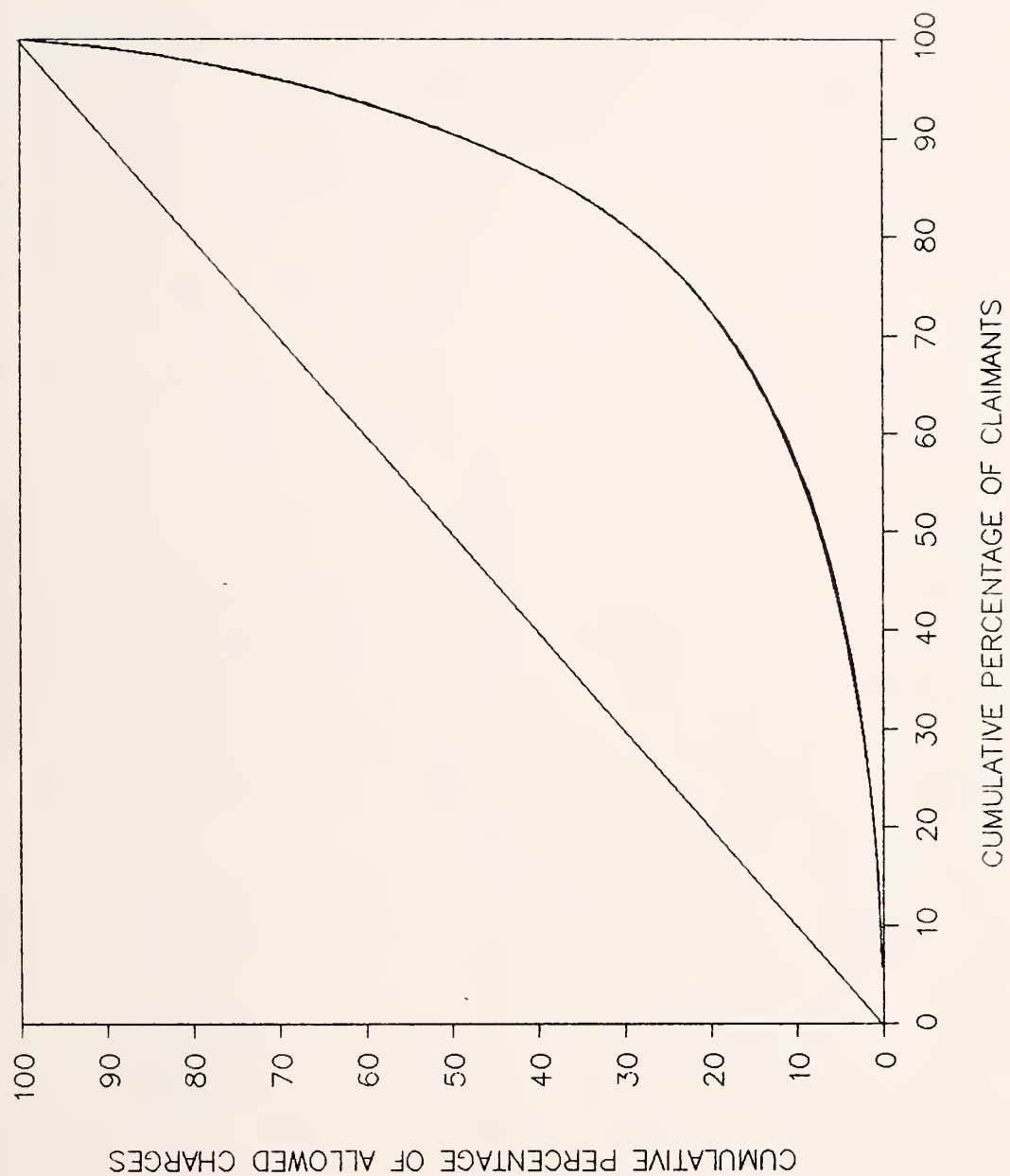
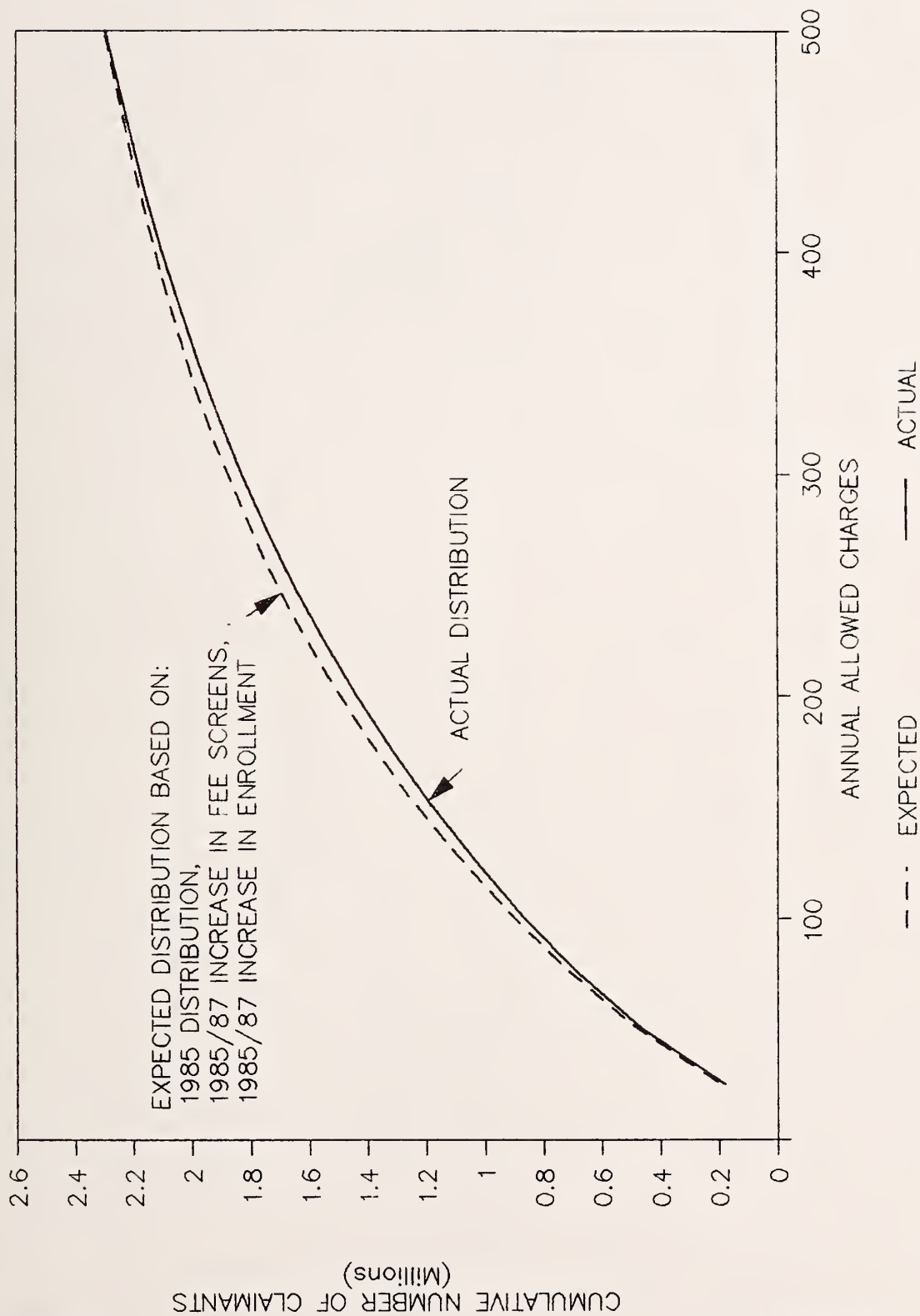


FIGURE 4.4

EXPECTED V ACTUAL DISTRIBUTION, 1987
ALLOWED CHARGES BY CLAIMANT



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